FAA
Air Traffic Organization

A Plan for the Future

10-Year Strategy for the
Air Traffic Control Workforce

2010 – 2019

This is FAA's fifth annual update to the controller workforce plan. The FAA issued the first comprehensive controller workforce plan in December 2004. This 2010 report incorporates changes in air traffic forecasts, controller retirements and other factors into the plan. In addition, it provides staffing ranges for all of the FAA's air traffic control facilities and actual onboard controllers as of September 26, 2009.

This report is required by Section 221 of Public Law 108-176 (updated by Public Law 111-117) requiring the FAA Administrator to transmit a report to the Senate Committee on Commerce, Science and Transportation and the House of Representatives Committee on Transportation and Infrastructure that describes the overall air traffic controller staffing plan, including strategies to address anticipated retirement and replacement of air traffic controllers.

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Executive Summary

Safety is the top priority of the Federal Aviation Administration (FAA) as it manages America's National Airspace System (NAS). Thanks to the expertise of people and the support of technology, tens of thousands of aircraft are guided safely and expeditiously every day through the NAS to their destinations.

Workload An important part of managing the NAS involves actively aligning controller resources with demand. The FAA "staffs to traffic," matching the number of air traffic controllers at its facilities with traffic volume and workload. The FAA's staffing needs are dynamic due to the dynamic nature of the workload and traffic volume.

Traffic Air traffic demand has declined significantly since 2000, the peak year for traffic. For the purposes of this plan, air traffic includes aircraft that are controlled, separated and managed by air traffic controllers. This includes commercial passenger and cargo aircraft as well as general aviation and military aircraft. In the past decade, volume has declined by 21 percent and is not expected to return to 2000 levels in the near term.

Headcount System-wide controller headcount is slightly higher than in 2000. We continue to hire in advance of need to allow sufficient training time for our new hires to replace retiring controllers. On a per-operation basis, the FAA has more fully certified controllers on board today than in 2000.

Retirements Fiscal year 2009 retirements were below projections, and lower than FY 2008. In addition, current year retirements are trending even lower. The FAA carefully tracks actual retirements and projects future losses to make sure its recruitment and training keep pace.

Hiring In the last five years, the FAA has hired more than 7,000 new air traffic controllers. The Department of Transportation's Inspector General stated that the FAA has "done what I can only say is a remarkable job in hiring replacements for controllers who have decided to leave."

As the FAA continues to bring these new employees on board, we must carefully manage the process to ensure that our trainees are hired in the places we need them and progress in a timely manner to become certified professional controllers. The FAA will also continue to take action at the facility level should adjustments become necessary due to changes in traffic volume, retirements or other attrition.

Training As the agency brings thousands of new air traffic controllers on board, the training of these new employees continues to be closely monitored at all facilities.

The trainee percentage of the FAA's national controller workforce has averaged 26 percent over the last 40 years, but has ranged from 15 to 50 percent. With the large number of new hires since 2005, the national average is peaking at 27 percent, but is expected to decline in subsequent years. This figure may be higher at some individual facilities; the FAA reviews this information along with other indicators so we can manage training and daily operations at each facility.

While the agency is focused on a small subset of facilities with particular staffing needs, the FAA achieved critical hiring and training milestones in FY 2009.

Hiring Milestones

- We exceeded our staffing goal by 1.2 percent for FY 2009, enabling the FAA's controller workforce to reach 15,770. Of the 1,731 controllers hired in FY 2009, 335 were graduates of Air Traffic Collegiate Training Initiative (AT-CTI) schools and an additional 262 had previous air traffic control experience.

- We held additional pre-employment processing centers (PEPCs), where final interviews were conducted and medical and security screenings were performed, allowing the FAA to get qualified applicants into training at a faster pace.

Training Milestones

- We realized a 49 percent increase in the number of new hire controllers who completed their facility training over FY 2008 numbers (1,279 vs 857).

- We added five new schools to the CTI program to teach air traffic basics as part of a college degree. Currently, there are 36 schools in the program to meet air traffic control hiring goals in the coming years.

Ongoing hiring and training initiatives, as well as increased simulator use, are helping the FAA meet its goals. While the FAA is managing today's air traffic, we must also integrate new technologies into air traffic operations. From state-of-the-art simulators to satellite technology, air traffic is evolving into a more automated system. The FAA is working diligently to ensure well-trained controllers continue to uphold the highest safety standards as we plan for the future.

The FAA's goal is to ensure that the agency has the flexibility to match the number of controllers at each facility with traffic volume and workload. Staffing to traffic is just one of the ways we manage America's National Airspace System.

1 Introduction

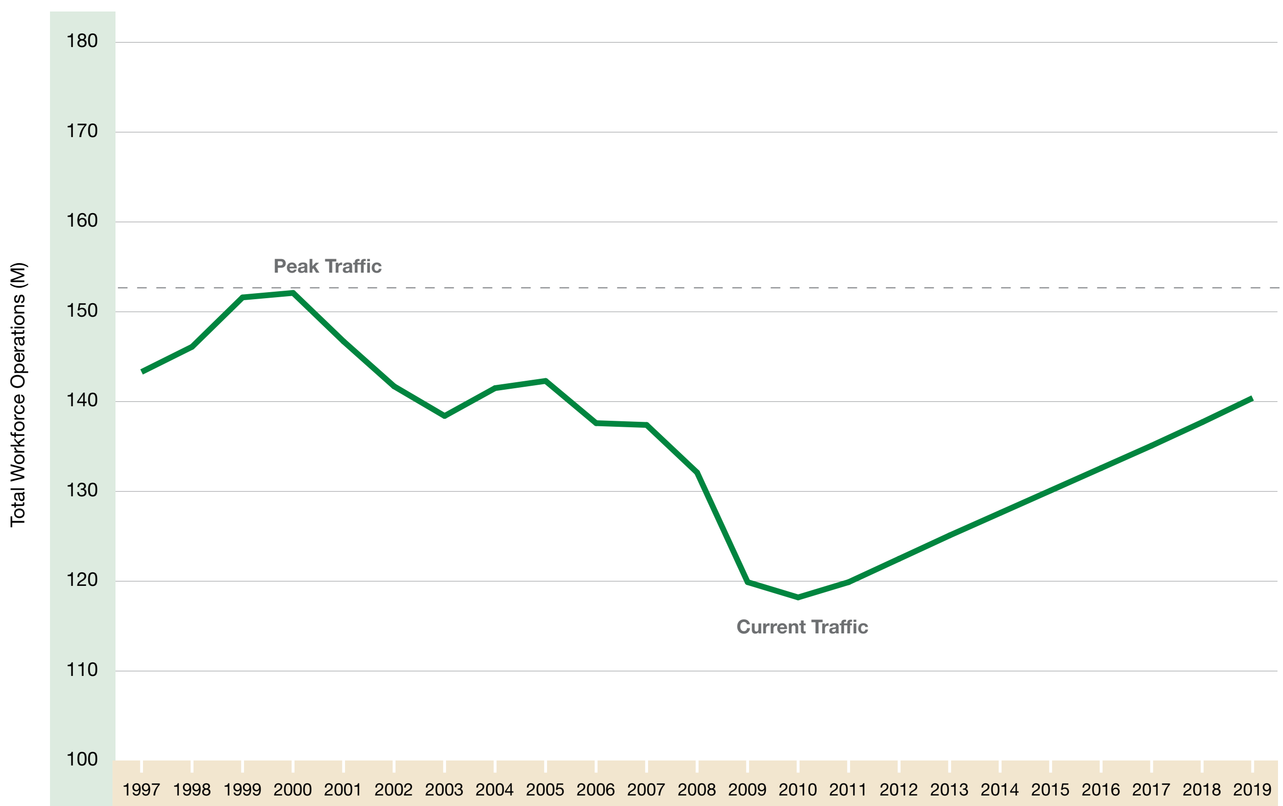
Staffing to Traffic

Air traffic controller workload and traffic volume are dynamic, and so are staffing needs. A primary factor affecting controller workload is the demand created by air traffic, encompassing both commercial and non-commercial activity. Commercial activity includes air carrier and commuter/air taxi traffic. Non-commercial activity includes general aviation and military traffic.

Adequate numbers of controllers must be available to cover the peaks in traffic caused by weather and daily, weekly or seasonal variations, so the FAA continues to “staff to traffic.” This practice gives us the flexibility to match the number of controllers at each facility with traffic volume and workload. This also means that we staff to satisfy expected needs two to three years in advance, in order to ensure sufficient training time for new hires.

System-wide, air traffic has declined by 21 percent since 2000. Figure 1.1 shows that air traffic volume is not expected to return to peak levels in the near term.

Figure 1.1 Traffic Forecast



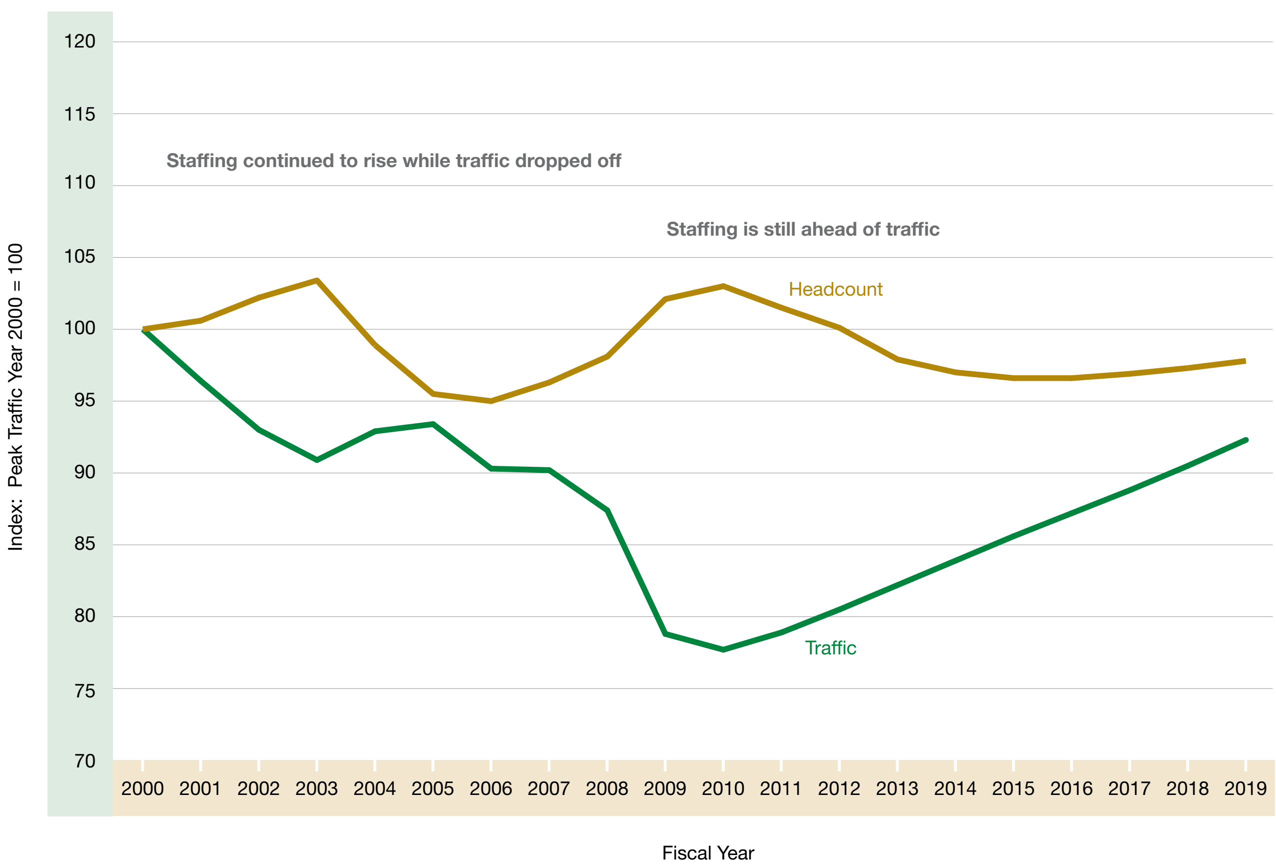
Total Workforce Operations = Tower + TRACON + Aircraft Handled by En Route Centers

Despite the decline in air traffic, "staffing to traffic" also requires us to anticipate controller attrition, so that we plan and hire new controllers in advance of need. This advance-hire trainee wave is one reason that staffing remains well ahead of traffic.

The FAA's challenge is to make sure newly hired controllers are effectively placed in the facilities where we will need them. Efficient scheduling of controllers also plays an important part in this challenge.

The chart below shows system-wide controller staffing and traffic, indexed from 2000 and projected through 2019. Due to the training wave, the current total headcount exceeds the level in 2000.

Figure 1.2 System-wide Traffic and Total Controller Trends



Meeting the Challenge

The FAA has demonstrated over the past several years that it can handle the long-predicted wave of expected controller retirements. The FAA's current hiring plan has been designed to phase in new hires as needed over time. This will avoid creating another major spike in retirement eligibility in future years like the current one resulting from the 1981 controller strike.

In 2005, the agency began hiring more controllers than the number that retired each year to make sure enough trained controllers were on board when the retirement wave began to swell. We have passed the crest, but we are still hiring significant numbers of new controllers to stay ahead of the retirements.

Controllers hired since 2005 are completing training and are replacing retirees as certified professional controllers (CPCs). Similarly, controllers hired in the 1990s and early 2000s may move from mid-level facilities into the higher-paying, higher-workload facilities. The transition through the ranks will continue to provide increased career growth opportunities for the workforce. For example, over the last six months, the FAA has received more than 50 applications to transfer to Southern California TRACON (SCT), one of the nation's busiest facilities. Of those applicants, 28 have been selected and 27 are expected to arrive this calendar year.

Hiring, however, is just one part of the challenge. Effective and efficient training as well as properly placing new hires and transferring controller resources to meet demand are all important factors in the agency's success.

Systematically replacing air traffic controllers where we need them, as well as ensuring the knowledge transfer required to maintain a safe NAS, is the focus of this plan.

2 Facilities and Services

America's NAS is a network of people, procedures and equipment. Pilots, controllers, technicians, engineers, inspectors and supervisors work together to make sure millions of passengers move through the airspace safely every day.

More than 15,000 federal air traffic controllers in airport traffic control towers, terminal radar approach control facilities and air route traffic control centers guide pilots through the system. An additional 1,250 civilian contract controllers and more than 9,000 military controllers also provide air traffic services for the NAS.

These controllers provide air navigation services to aircraft in domestic airspace including 24.6 million square miles of international oceanic airspace delegated to the United States by the International Civil Aviation Organization.

Terminal and En Route Air Traffic Services

Controller teams in airport towers and radar approach control facilities watch over all planes traveling through the "terminal" airspace. Their main responsibility is to organize the flow of aircraft into and out of an airport. Relying on visual observation and radar, they closely monitor each plane to ensure a safe distance between all aircraft and to guide pilots on the ground during takeoff and landing. In addition, controllers keep pilots informed about changes in weather conditions.

Once airborne, the plane quickly departs the terminal airspace surrounding the airport. At this point, controllers in the radar approach control notify "en route" controllers who take charge in the vast airspace between airports. There are 21 air route traffic control centers around the country. Each en route center is assigned a block of airspace containing many defined routes. Airplanes fly along these designated routes to reach their destination.

En route controllers use surveillance methods to maintain a safe distance between aircraft. En route controllers also provide weather advisory and traffic information to aircraft under their control. As an aircraft nears its destination, en route controllers transition it to the terminal environment, where terminal controllers guide it to a safe landing.

FAA Air Traffic Control Facilities

As of October 1, 2009, the FAA operated 316 air traffic control facilities and the Air Traffic Control System Command Center in the United States. Table 2.1 lists the type and number of these FAA facilities. More than one type of facility may be collocated in the same building.

Each type of FAA facility has several classification levels based on numerous factors, including traffic volume, complexity and sustainability of traffic. To account for changes in traffic and the effect of investments that reduce complexity, as well as to compensate controllers that work the highest and most complex volume of traffic, facilities are monitored for downward and upward trends.

Table 2.1 Types and Number of FAA Air Traffic Control Facilities

Type	Name	Number of Facilities	Description
1	Tower without Radar	1	An airport traffic control terminal that provides service using direct observation primarily to aircraft operating under visual flight rules (VFR). These terminals are located at airports where the principal user category is low-performance aircraft.
2	Terminal Radar Approach Control (TRACON)	24	An air traffic control terminal that provides radar-control service to aircraft arriving or departing the primary airport and adjacent airports, and to aircraft transiting the terminal's airspace.
3	Combination Radar Approach Control and Tower with Radar	132	An air traffic control terminal that provides radar-control service to aircraft arriving or departing the primary airport and adjacent airports, and to aircraft transiting the terminal's airspace. This terminal is divided into two functional areas: radar approach control positions and tower positions. These two areas are located within the same facility, or in close proximity to one another, and controllers rotate between both areas.
4	Combination Non-Radar Approach Control and Tower without Radar	2	An air traffic control terminal that provides air traffic control services for the airport at which the tower is located and without the use of radar, approach and departure control services to aircraft operating under Instrument Flight Rules (IFR) to and from one or more adjacent airports.
6	Combined Control Facility	4	An air traffic control facility that provides approach control services for one or more airports as well as en route air traffic control (center control) for a large area of airspace. Some may provide tower services along with approach control and en route services.
7	Tower with Radar	128	An airport traffic control terminal that provides traffic advisories, spacing, sequencing and separation services to VFR and IFR aircraft operating in the vicinity of the airport, using a combination of radar and direct observations.
8	Air Route Traffic Control Center (ARTCC)	21	An air traffic control facility that provides air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
9	Combined TRACON Facility	4	An air traffic control terminal that provides radar approach control services for two or more large hub airports, as well as other satellite airports, where no single airport accounts for more than 60 percent of the total Combined TRACON facility's air traffic count. This terminal requires such a large number of radar control positions that it precludes the rotation of controllers through all positions.
-	Air Traffic Control System Command Center	1	The Air Traffic Control System Command Center is responsible for the strategic aspects of the NAS. The Command Center modifies traffic flow and rates when congestion, weather, equipment outages, runway closures or other operational conditions affect the NAS.

3 Staffing Requirements

The FAA issued the first comprehensive controller workforce plan in December 2004. "A Plan for the Future: A 10-Year Strategy for the Controller Workforce" detailed the resources needed to keep the controller workforce sufficiently staffed. This report is updated each year to reflect changes in traffic forecasts, retirements and other factors.

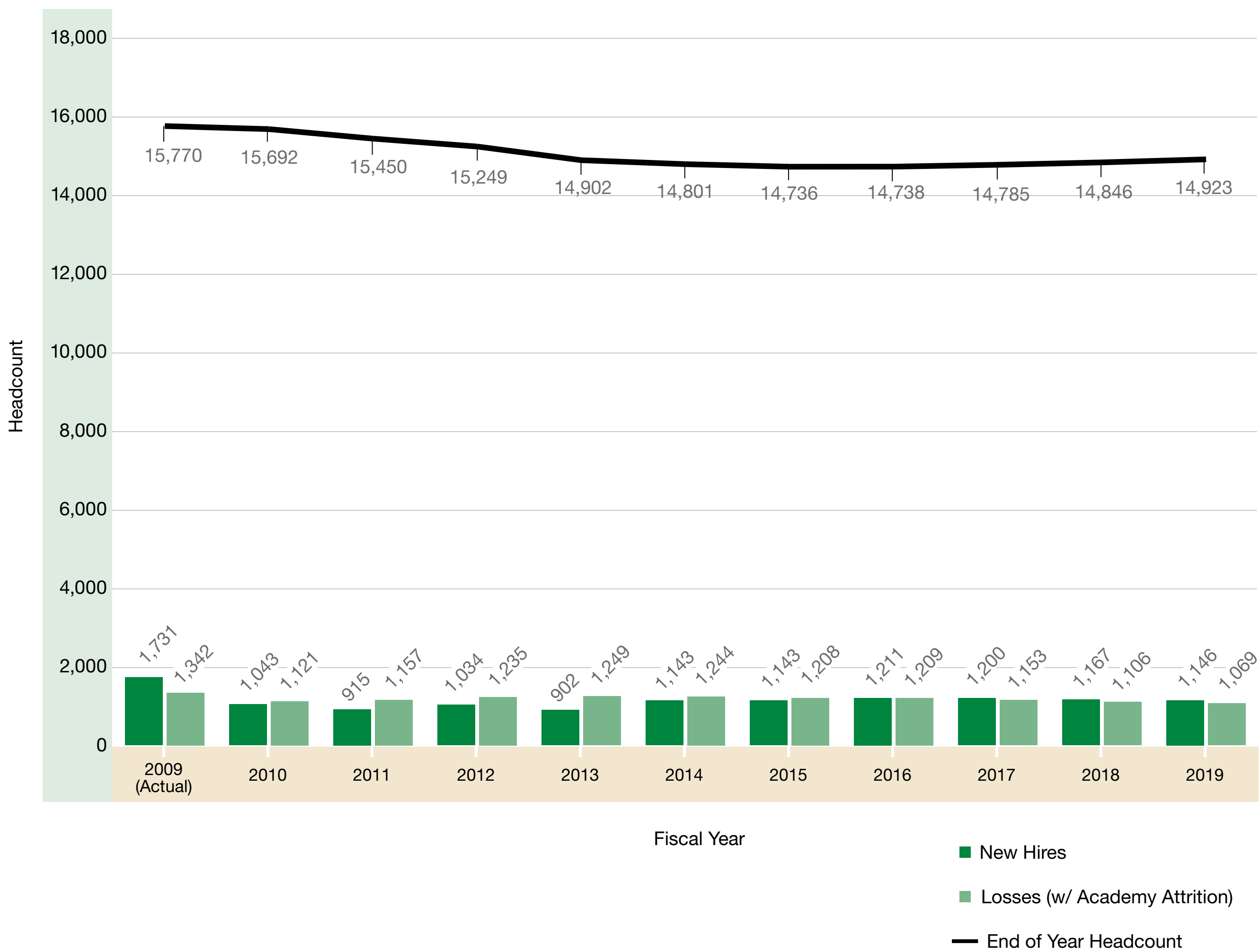
"Staffing to traffic" requires the FAA to consider many facility-specific factors. They include traffic volumes based on FAA forecasts and hours of operation, as well as individualized forecasts of controller retirements and other attrition losses. In addition, staffing at each location can be affected by unique facility requirements such as temporary airport runway construction, seasonal activity and the number of controllers currently in training. Staffing numbers will vary as the requirements of the location dictate.

Proper staffing levels also depend on the efficient scheduling of employees, so the FAA tracks a number of indicators as the agency reviews staffing levels. Some of these indicators are overtime, time on position, leave usage and the number of trainees. For example, in FY 2009, the system average for overtime was 2.2 percent, a slight decrease from the FY 2008 level.

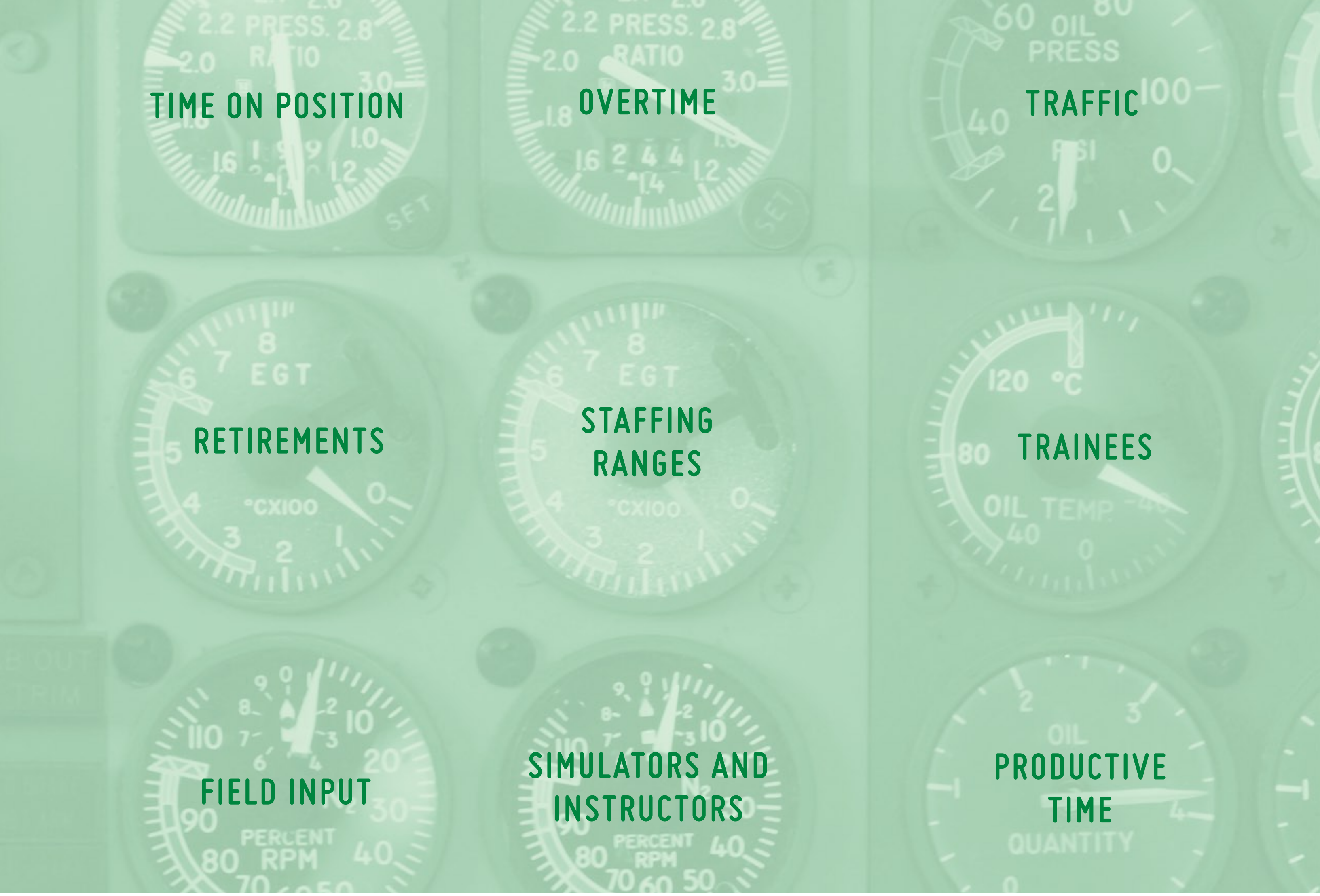
Figure 3.1 shows the expected end-of-year headcount, losses and new hires by year through FY 2019. Figures for FY 2009 represent actual end-of-year headcount, losses and hires.

There is a slight decline in the end-of-year headcount over previous versions of the plan due to forecasts of declining traffic and accelerated hiring in 2008 and 2009.

Figure 3.1 Projected Controller Workforce



Note: Annual hires and losses are a relatively small proportion of the total controller workforce.



The FAA uses many metrics to manage its facilities.

Staffing Ranges

Because traffic and other factors are dynamic at individual facilities, the FAA produces facility-level controller staffing ranges. These ranges ensure that there are enough controllers to cover operating positions every day of the year.

The process for establishing controller ranges by facility involves the use of several data sources. In developing these ranges, the FAA considers past facility performance, the performance of other similar facilities, productivity improvements, staffing standards and recommendations from the National Academy of Sciences, along with input from managers in the field, overtime trends, time-on-position data and expected retirements and other losses. Each facility is reviewed to evaluate headcount, operational activity and productivity trends. Productivity trends are then compared with facility-specific history as well as appropriate peer facilities. These peers are determined by the facility type and level.

The FAA uses four data sources to calculate staffing ranges. Three are data driven, the other based on field judgment. They are:

1. Staffing standards – mathematical models used to relate controller workload and air traffic activity.

2. Past productivity – the headcount required to match the historical best productivity for the facility. Productivity is defined as operations per controller. Facility productivity is calculated using operations and controller data from the years 1999 to 2009. If any annual point falls outside +/- 5 percent of the 1999 to 2009 average, it is thrown out. From the remaining data points, the highest productivity year is then used.

3. Service unit input – including field manager input.

4. Peers – the headcount required to match peer group productivity. Like facilities are grouped by type and level and their corresponding productivity is calculated. If the facility being considered is consistently above or below the peer group, the peer group figure is not used in the overall average and analysis.

The average of this data is calculated, rounded to the nearest whole number, multiplied by plus 10 percent and minus 10 percent and then rounded again to determine the high and low points in the staffing range.

Exceptional situations, or outliers, are removed from the averages (for example, if a change in the type or level of a facility occurred over the period of evaluation). By analyzing the remaining data points, staffing ranges are generated for each facility.

The agency's hiring and staffing plans consider all of these inputs as well as other considerations such as time on position and overtime. All of these data points are reviewed collectively and adjustments are made to facility staffing plans during the year as necessary.

In this report we present staffing ranges for each of the FAA's 316 air traffic control facilities. The ranges include all controllers at the facility, including certified professional controllers (CPCs) and trainees. Trainees are defined as the number of developmental controllers and certified professional controllers in training (CPC-IT).

Most facilities will be in a period of transition over the next few years and will be staffing with a combination of CPCs, CPC-ITs and a large number of position-qualified developmental controllers who are proficient, or checked, out in specific sectors or positions. Developmentals have always handled live traffic and, in fact, this is a requirement to maintain proficiency as they progress toward CPC status.

In many facilities, the current Actual on Board (AOB—all controllers at the facility) number is higher than the range maximum. This is because many facilities' current AOB numbers include larger numbers of developmentals in training to offset expected future attrition.

In the longer term, the number of new hires and total controllers will decline as the current wave of developmentals become CPCs, and the long expected retirement wave has passed. At that point, the vast majority of the controllers will be CPCs and CPC-ITs, and more and more facilities will routinely fall within the ranges.

The staffing ranges for 2010 are published in the Appendix of this report.

Figure 3.2 Controller Staffing Range

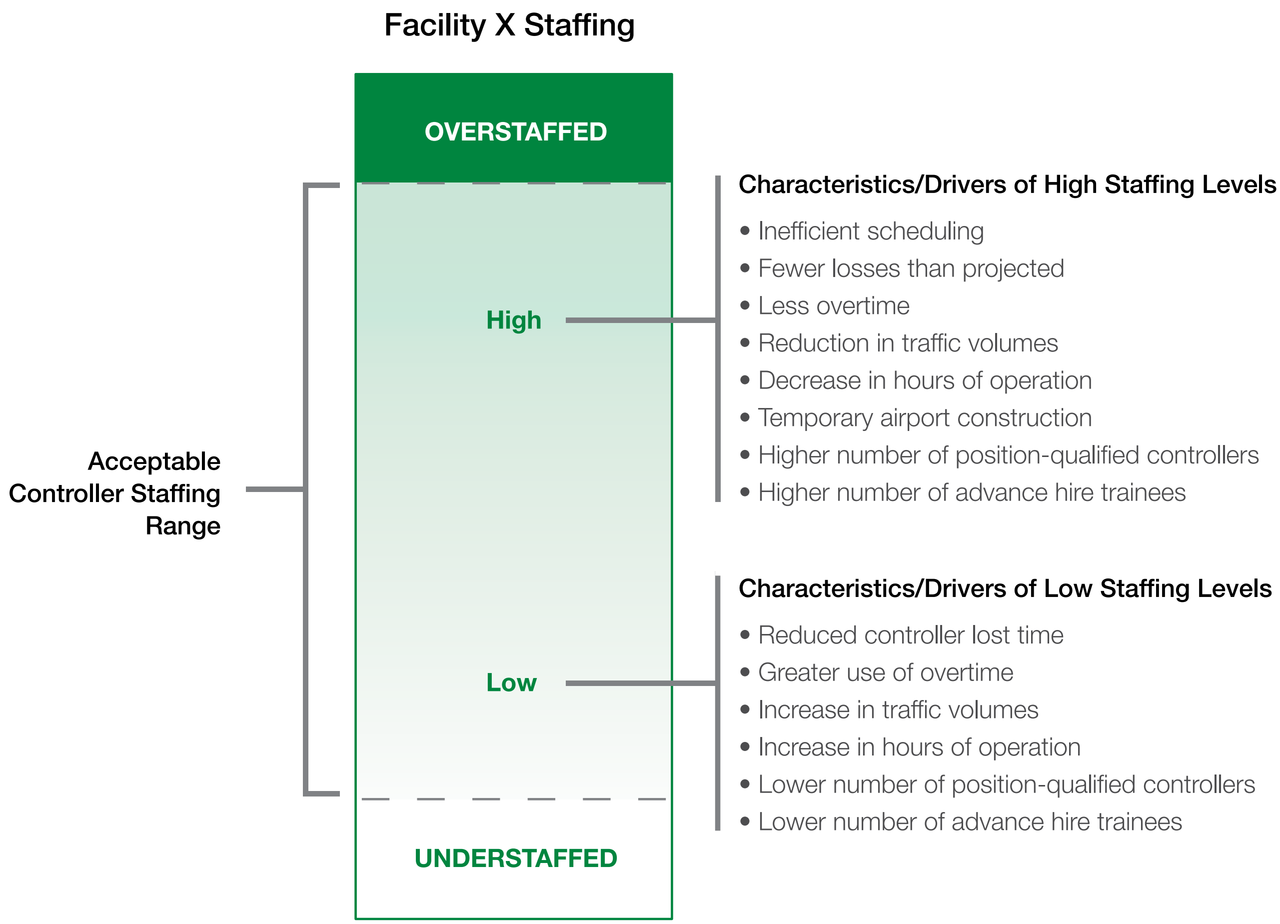


Figure 3.3 depicts an example of a large, Type 3 FAA facility. This Combination Radar Approach Control and Tower with Radar facility is one in which controllers work in the tower cab portion and in the radar room (also known as a TRACON). To be a CPC in these types of facilities, controllers must be checked out on all positions in both the tower and the TRACON.

Trainees are awarded “D1” status (and the corresponding increase in pay) after being checked out on several positions. The levels of responsibility (and pay) gradually increase as trainees progress through training.

Once controllers are checked out at the D1 level, they can work several positions in the tower (Clearance Delivery, Ground Control and Local Control). Once checked out on the Runway Crossing Coordinator position, the controller would be considered tower certified, but still not a CPC, as CPCs in this type of facility must also be certified on positions in the radar room.

The levels of responsibility continue to increase as one progresses toward CPC status, but trainees can and do control traffic much earlier in the training process. Historically, the FAA has used these position-qualified controllers to staff operations and free up CPCs for more complex positions as well as to conduct training.

Having the majority of the workforce checked out as CPCs makes the job of scheduling much easier at the facility. CPCs can cover all positions in their assigned area, while position-qualified developmentals require the manager to track who is qualified to work which positions independently.

Figure 3.3 Controller Training Progression

Controller Training Progression to CPC

D1	D2	D3	CPC	
			Radar Position 5	TRACON
			Radar Position 4	TRACON
		Radar Position 3	Radar Position 3	TRACON
		Radar Position 2	Radar Position 2	TRACON
		Radar Position 1	Radar Position 1	TRACON
	Final Vector 2	Final Vector 2	Final Vector 2	TRACON
	Final Vector 1	Final Vector 1	Final Vector 1	TRACON
	Departure Data	Departure Data	Departure Data	TRACON
	Arrival Data	Arrival Data	Arrival Data	TRACON
	Runway Crossing Coordinator	Runway Crossing Coordinator	Runway Crossing Coordinator	TOWER
Local Control	Local Control	Local Control	Local Control	TOWER
Ground Control	Ground Control	Ground Control	Ground Control	TOWER
Clearance Delivery	Clearance Delivery	Clearance Delivery	Clearance Delivery	TOWER

Trainees are defined as the number of developmental and certified professional controllers in training (CPC-IT)

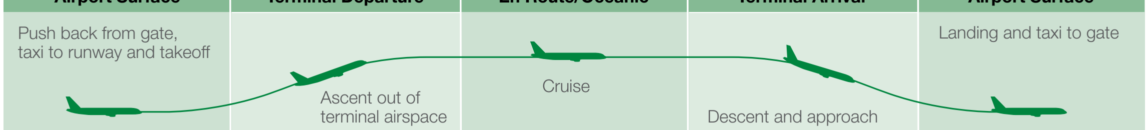
Air Traffic Staffing Standards Overview

The FAA has used air traffic staffing standards to help determine controller staffing levels since the 1970s.

FAA facilities are currently identified and managed as either “terminal” facilities where airport traffic control services are provided, including the immediate airspace around an airport, or “en route” facilities where high altitude separation services are provided using computer systems and surveillance technologies. Terminal facilities are further designated as tower cabs or TRACONs. These terminal facilities may be collocated in the same building, but because of differences in workload, their staffing requirements are modeled separately.

Figure 3.4 Air Traffic Control Position and Facility Overview

Airport Surface	Terminal Departure	En Route/Oceanic	Terminal Arrival	Airport Surface



Airport Traffic Control Tower (ATCT)	**Terminal Radar Approach Control (TRACON)**	**Air Route Traffic Control Center (ARTCC)**	**Terminal Radar Approach Control (TRACON)**	**Airport Traffic Control Tower (ATCT)**
Ground Controller Issues approval for push back from gate and issues taxi instructions and clearances. **Local Controller** Issues takeoff clearances, maintains prescribed separation between departure aircraft, provides departure aircraft with latest weather/field conditions. **Clearance Delivery** Issues IFR and VFR flight plan clearances. **Flight Data** Receives and relays weather information and Notice to Airmen.	**Departure Controller** Assigns headings and altitudes to departure aircraft. Hands off aircraft to the center controller. **Flight Data - Radar** Issues IFR flight plan clearances to aircraft at satellite airports, coordinates releases of satellite departures.	**Radar Controller** Ensures the safe separation and orderly flow of aircraft through en route center airspace (includes oceanic airspace). **Radar Associate** Assists the Radar Controller. **Radar Associate (Flight Data)** Supports the Center Radar Controller by handling flight data.	**Arrival Controller** Assigns headings and altitudes to arrival aircraft to establish aircraft on final approach course.	**Local Controller** Issues landing clearances, maintains prescribed separation between arrivals, provides arrival aircraft with latest weather/field conditions. **Ground Controller** Issues taxi instructions and clearances to guide aircraft to the gate.

The dynamic nature of air traffic controller workload coupled with traffic volume and facility staffing needs are all taken into account during the development of FAA staffing standards/models.

All FAA staffing models incorporate similar elements:

- Controller activity data is collected and processed commensurate with the type of work being performed in the facilities.
- Models are developed that relate controller workload to air traffic activity. These requirements are entered into a scheduling algorithm.
- The modeled workload/traffic activity relationship is forecast for the 90th percentile (or 37th busiest) day for future years for each facility. Staffing based on the demands for the 90th percentile day assures that there are adequate numbers of controllers to meet traffic demands throughout the year.
- Allowances are applied for off-position activities such as vacation, training, etc.

In 2005, the FAA began an air traffic staffing standard review and assessment with the expectation of developing staffing ranges at the facility level. In 2007, the FAA revised the standards models for towers and en route centers and, in 2009, completed revised standards models for TRACON facilities.

The FAA incorporated recommendations found in the Transportation Research Board special report “Air Traffic Control Facilities, Improving Methods to Determine Staffing Requirements.” These recommendations included significantly expanding the amount of input data and improving the techniques used to develop the standards.

All staffing models went through similar development processes. Some components of the model-development phase varied as a function of the work being performed by the controllers. For example, a crew-based approach was used to model tower staffing requirements because the number and type of positions in a tower cab vary considerably as traffic changes, compared to those of a single sector in a TRACON or en route center. All staffing models reflect the dynamic nature of staffing and traffic. Controller staffing requirements can vary throughout the day and throughout the year.

The staffing standards models were updated in the last few years. The standards produced by the models are updated each year to account for changes in traffic and other factors.

Tower Cab Overview

Air traffic controllers working in tower cabs manage traffic within a radius of a few miles of the airport. They instruct pilots during taxiing and takeoff, and they grant clearance for aircraft to fly. Tower controllers ensure that aircraft maintain minimum separation distances between landing and departing aircraft, transfer control of aircraft to TRACON controllers when the aircraft leave their airspace, and receive control of aircraft for flights coming into their airspace.

- There are a variety of positions in the tower cab, such as Local Control, Ground Control, Flight Data, Coordinator, etc. Depending on the airport layout and/or size of the tower cab, there can be more than one of the same types of position on duty.

- This mix of controller positions is often called a crew.

- As air traffic changes, many times so do the positions that comprise the crew.

- As traffic increases, more or different positions are opened; as traffic decreases, positions are closed or combined with other positions.

Important factors that surfaced during the tower staffing model development included the availability, accessibility and increased reliability of traffic data and controller on-position reporting systems. The FAA was able to analyze much larger quantities of tower data at a level of granularity that was previously unattainable. Staffing data and traffic volumes were collected for every facility.

The revised tower cab standards were developed using regression analysis as the primary method for modeling the relationship between staffing and workload drivers. Models were developed that related observed, on-position controllers to the type and amount of traffic they handled. Regression analysis allowed us to relate modeled controller staffing requirements with traffic activity and then use this relationship to predict future staffing requirements (standards) based on traffic projections.

TRACON Overview

Air traffic controllers working in TRACONs typically manage traffic within a 40-mile radius of the primary airport; however, this radius can vary by facility. They instruct departing and arriving flights, and they grant clearance for aircraft to fly through the TRACON's airspace. TRACON controllers ensure that aircraft maintain minimum separation distances between landing and departing aircraft, transfer control of aircraft to tower or en route center controllers when the aircraft leave their airspace, and receive control of aircraft for flights coming into their airspace.

- TRACON airspace is divided into sectors.

- Controllers are assigned to various positions like Radar, Final Vector, Departure Data, etc. to work traffic within each sector. These positions may be combined or de-combined based on changes in air traffic operations.

- As traffic increases, the sectors may be subdivided (de-combined) and additional positions opened, or the sector sizes can be maintained with an additional controller assigned to an assistant position within the same sector.

- Similarly, when traffic declines, the additional positions can be closed or the sectors recombined.

Like the tower analysis, the FAA was able to analyze much larger quantities of TRACON data at a level of granularity that was previously unattainable. Important factors surfaced during the TRACON staffing model review including the availability, accessibility and increased reliability of traffic data and controller on-position reporting systems. Staffing data and traffic volumes were collected for every facility.

The TRACON standards models were updated in early 2009. The revised TRACON standards were developed using regression analysis as the primary method for modeling the relationship between staffing and workload drivers. Models were developed that related observed, on-position controllers to the type and amount of traffic they handled. Regression allowed us to relate modeled controller staffing requirements with traffic activity and then use this relationship to predict future staffing requirements (standards) based on traffic projections. Cluster analysis techniques were used to group facilities based on level of difficulty.

En Route Overview

Air traffic controllers assigned to en route centers guide airplanes flying outside of terminal airspace. They also provide approach control services to small airports around the country where no terminal service is provided. As aircraft fly across the country, pilots talk to controllers in successive en route centers.

- En route center airspace is divided into smaller, more manageable blocks of airspace called areas and sectors.

- Areas are distinct, and rarely change based on changes in traffic. Within those areas, sectors may be combined or de-combined based on changes in air traffic operations.

- Controllers are assigned to positions within the sectors, (e.g., Radar, Radar Associate, Tracker). As traffic increases, sectors can be de-combined and additional positions opened, or the sector sizes can be maintained but additional controllers added to assistant positions within the sectors.

- Similarly, when traffic declines, the additional positions can be closed or the sectors recombined.

The FAA's Federally Funded Research and Development Center, operated by The MITRE Corporation, developed a model to generate data needed for the FAA's staffing models. Like the tower and TRACON standards models, this approach incorporated actual traffic and more facility-specific data.

MITRE's modeling approach reflects the dynamic nature of the traffic characteristics in a sector. It estimates the number of controllers, in teams of one to three people, necessary to work the traffic for that sector in 15-minute intervals. Differences in traffic characteristics in a sector could require different numbers of controllers to handle the same volume of traffic. For example, at one time most traffic might be cruising through a sector toward another location with few conflicts between the aircraft. At another time, traffic might be climbing and descending through the same sector, a more complex scenario requiring more controllers. The same modeling techniques were applied uniformly to all sectors, providing results based on a common methodology across the country.

The modeling techniques and data provided by MITRE were validated through site visits, interviews with operational personnel, extensive data collection and detailed analysis of a year's worth of aviation traffic data. The FAA used this data as input to its staffing models to calculate how many controllers were needed by facility. The FAA's staffing models incorporate the input data provided by MITRE, run it through a shift scheduling algorithm, apply traffic growth forecasts, and then apply factors to cover vacation time, break time, training, etc., to provide the staffing ranges presented in this plan for each en route center.

The National Academy of Sciences is currently reviewing the modeling approach developed by MITRE.

Technological Advances

The FAA is laying the foundation for the Next Generation Air Transportation System (NextGen) with new satellite-based technologies. When possible, NextGen capabilities are being integrated into existing systems to improve operations today. To learn more about NextGen, see our Web site at http://www.faa.gov/about/initiatives/nextgen/

At the request of both Congress and industry, the FAA is moving aggressively to field early components of NextGen and maximize immediate benefits for air traffic controllers, pilots, aircraft operators and, most importantly, the flying public. We are rapidly transitioning from ground-based navigation to an operation that makes greater use of satellites. One such effort, Automatic Dependent Surveillance-Broadcast (ADS-B), has been deployed in southern Florida and in areas of the Gulf of Mexico where there is no radar coverage.

Other programs such as the System Wide Information Management (SWIM) program, Data Communications, and NAS Voice Switch have achieved major acquisition milestones. NextGen Network Enabled Weather (NNEW) aims to integrate weather data into automated decision support tools. This is a necessary step in realizing improved management of weather in the NAS.

This evolutionary approach provides for a smooth transition for pilots and controllers.This approach also allows for improvements throughout the NextGen investment period.

The FAA expects that new technologies will result in a more automated system that will, over time, change the role of controllers. The phase-in of these new technologies and the phaseout of older technologies is a long-term gradual process currently under development. The FAA is still determining how the changes in technology will affect the controller workload, and so the 2010 controller workforce plan does not factor in these changes in determining staffing requirements in the out-years.

For staffing purposes, the FAA will continue to adjust staffing as described in this plan to meet the expected changes in air traffic activity.

4 Losses

In total, the FAA expects to lose over 1,100 controllers due to retirements, promotions and other losses this fiscal year. Other controller losses include resignations, removals, deaths, developmental attrition and academy attrition.

Fiscal year 2009 attrition came in 13 percent below plan, primarily due to 28 percent fewer retirements. We have incorporated this slower attrition into our forecasts.

Controller Loss Summary

In addition to retirements, the agency loses controllers to resignations, removals, deaths, developmental attrition, promotions, transfers and academy attrition.

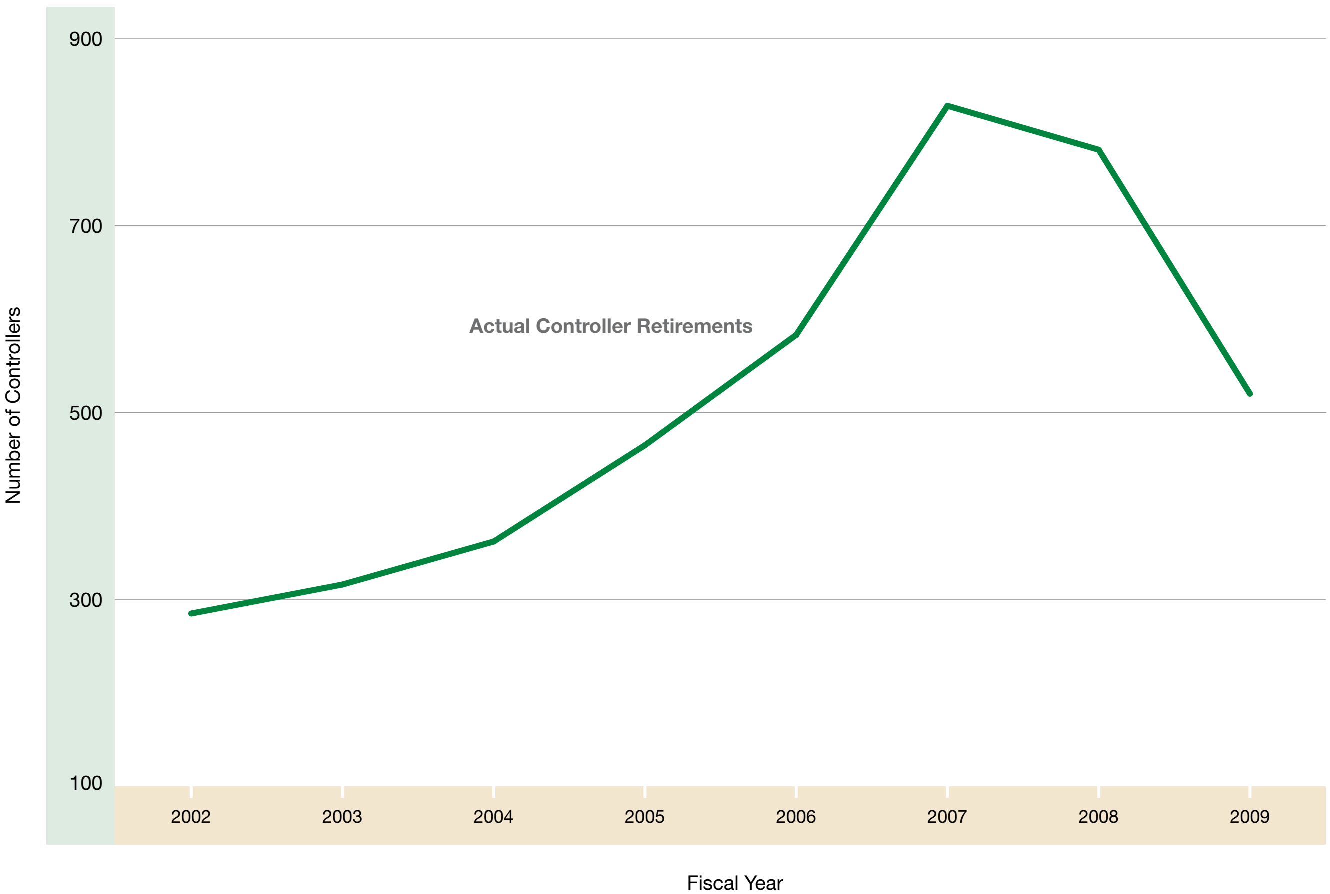
Table 4.1 shows the total estimated number of controllers that will be lost, by category, over the period FY 2010 through FY 2019.

Table 4.1 Controller Loss Summary

Loss Category	Losses: 2010-2019
Retirements	4,957
Resignations, Removals and Deaths	862
Developmental Attrition	1,507
Promotions/Transfers	3,798
Academy Attrition	627
Total	**11,751**

Fiscal year 2007 was correctly projected to be a peak year for retirements of controllers hired in the early 1980s.

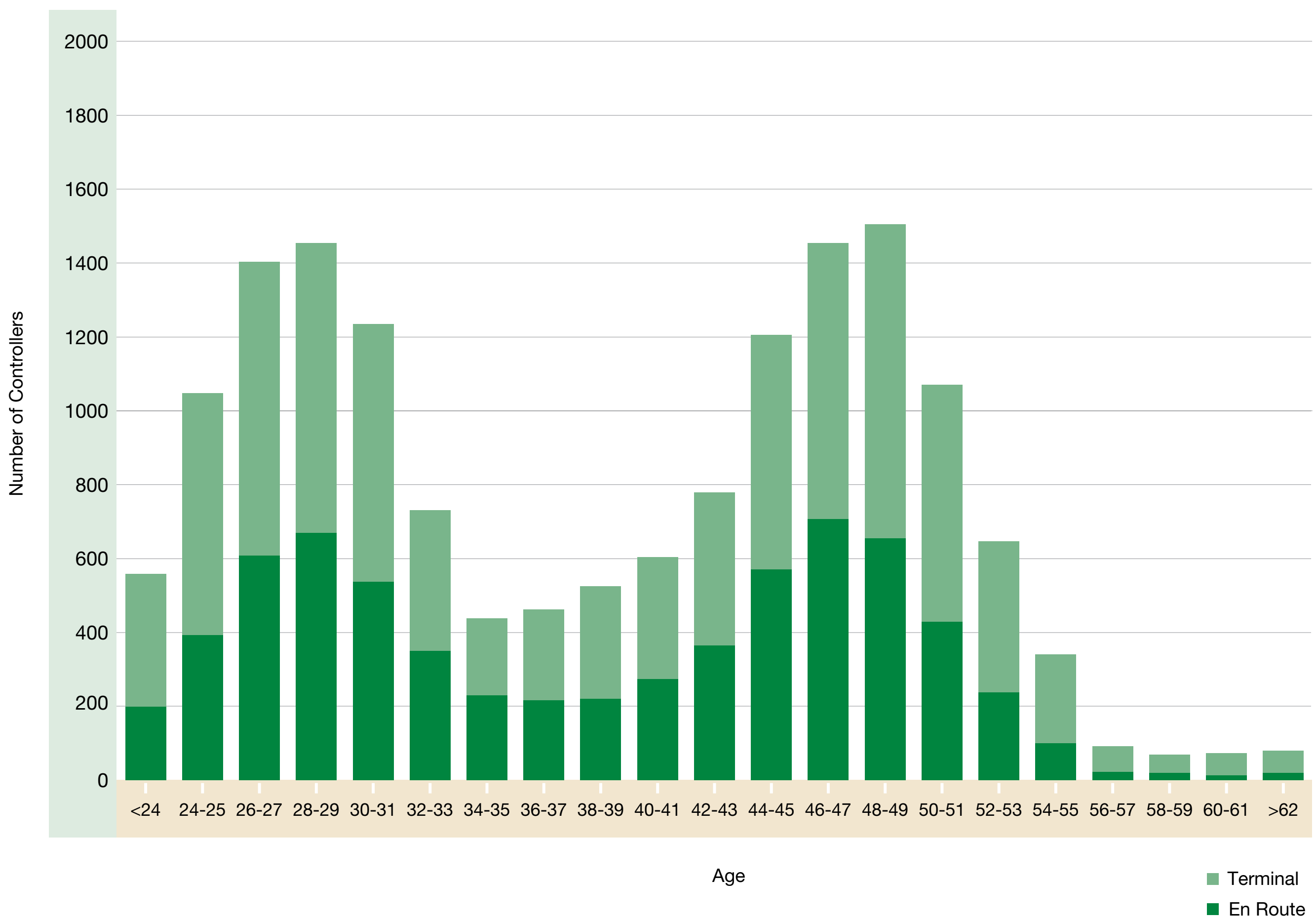
Figure 4.1 Actual Controller Retirements



Controller Workforce Age Distribution

The agency hired a substantial number of controllers in the years immediately following the 1981 strike. This concentrated hiring wave created the situation whereby a large portion of the controller workforce would reach retirement age in roughly the same time period. In September 2005, the right most age peak in Figure 4.2 was greater than 1,900 controllers. Today, the magnitude of that remaining peak is down to about 1,500 controllers.

Figure 4.2 Controller Workforce Age Distribution as of September 26, 2009



Today's hiring plans are designed to gradually phase in new hires as needed. This will also spread out the retirement eligibility of the current wave of new hires and reduce the magnitude of the retirement eligibility peak in future years.

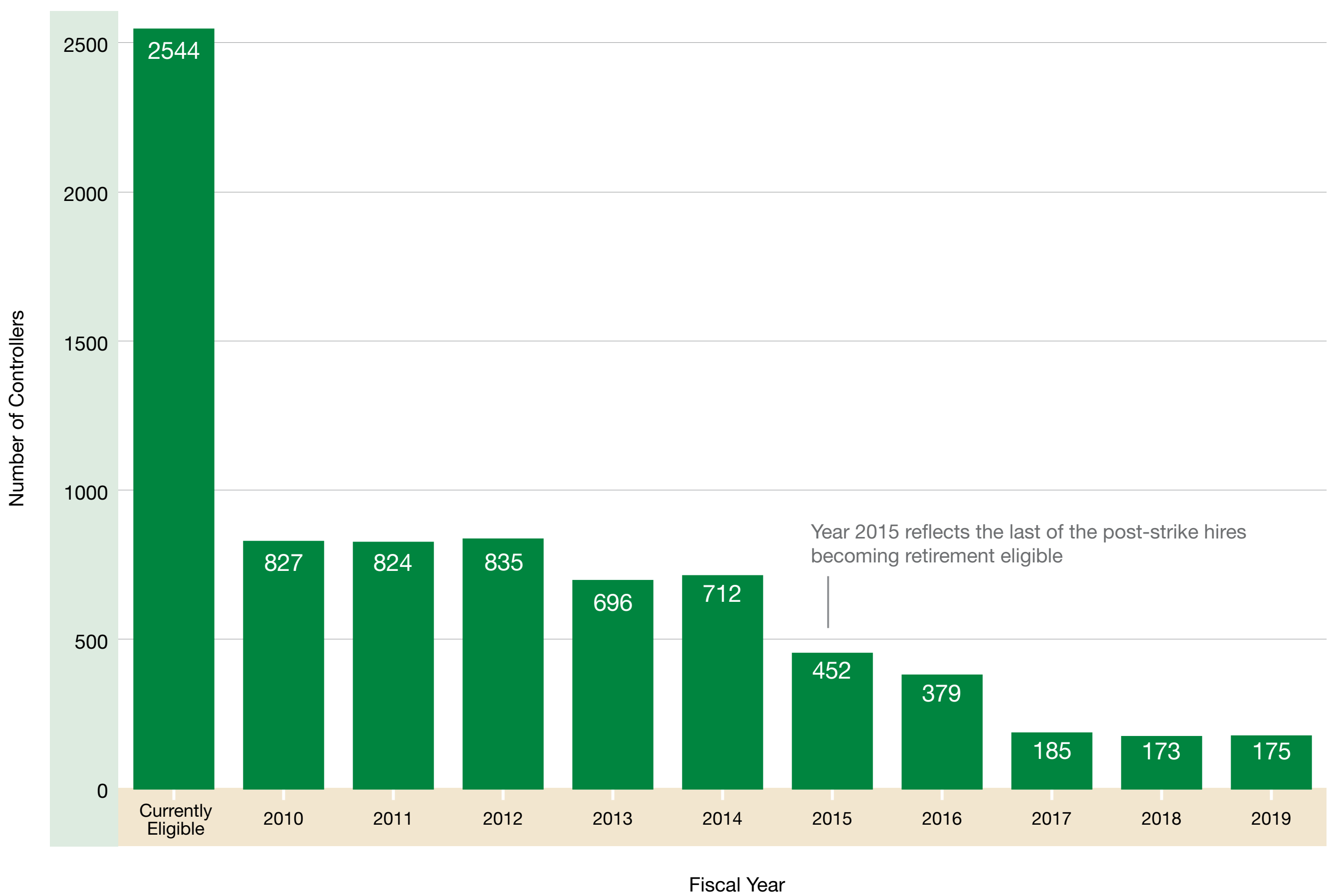
Controller Retirement Eligibility

In addition to normal civil service retirement criteria, controllers can become eligible under special retirement criteria for air traffic controllers (age 50 with 20 years of "good time" service or any age with 25 years "good time" service). "Good time" is defined as service in a covered position, as defined in Public Law 92-297.

After computing eligibility dates using all criteria, the FAA assigns the earliest of the dates as the eligibility date. Eligibility dates are then aggregated into classes based on the fiscal year in which eligibility occurs.

Figure 4.3 shows the number of controllers who are currently retirement eligible as of September 2009 and those projected to become retirement eligible by class year through FY 2019. Agency projections show that an additional 827 controllers will become eligible to retire in FY 2010.

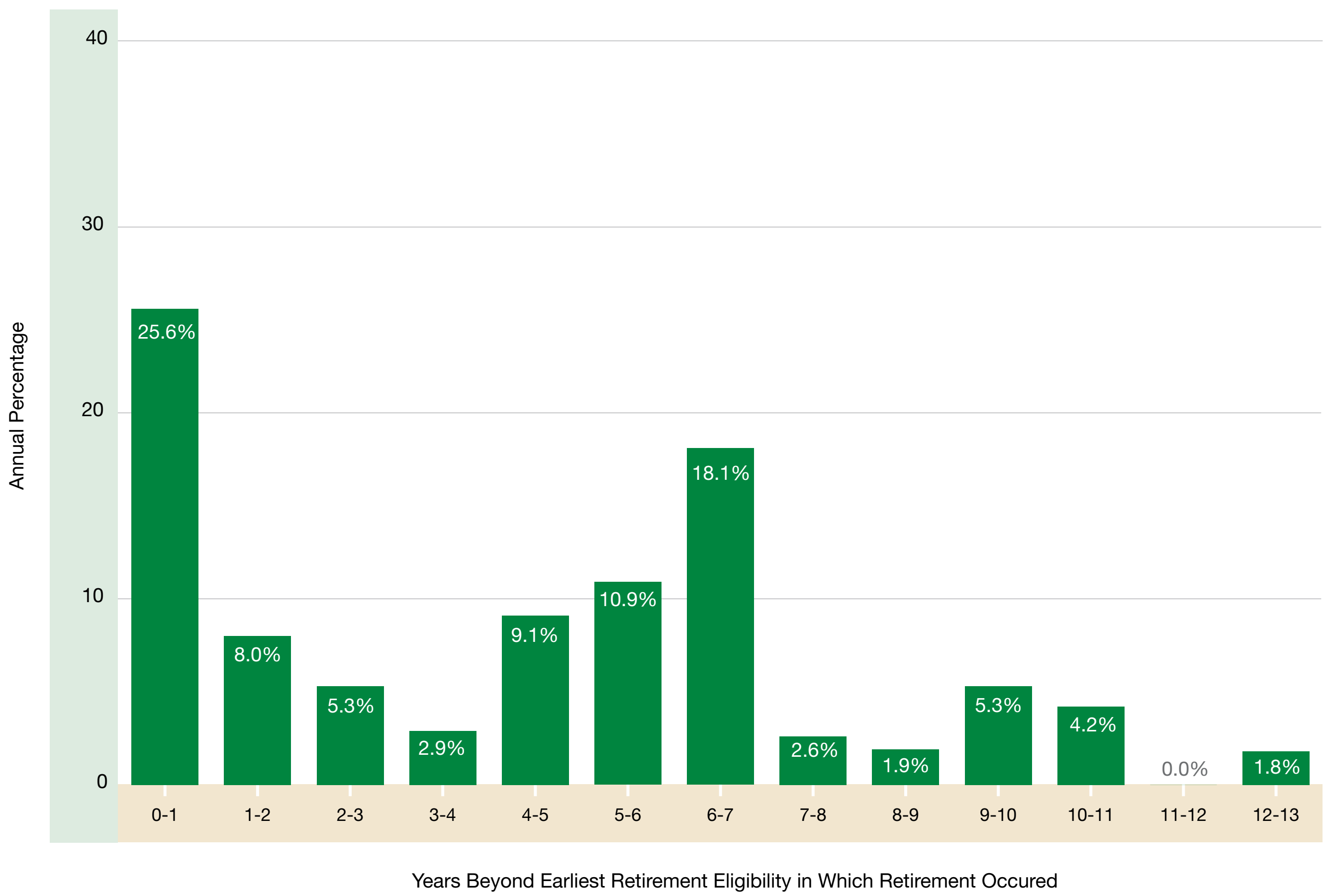
Figure 4.3 Retirement Eligibility



Controller Retirement Pattern

History shows that not all controllers retire when they first become eligible. In 2009, only 25.6 percent of controllers retired the first year they were eligible. We used last year's actual retirement pattern to generate future controller retirement estimates. Figure 4.4 shows this pattern.

Figure 4.4 Percent of Controllers Retiring in their Nth Year of Eligibility



Controller Losses Due to Retirements

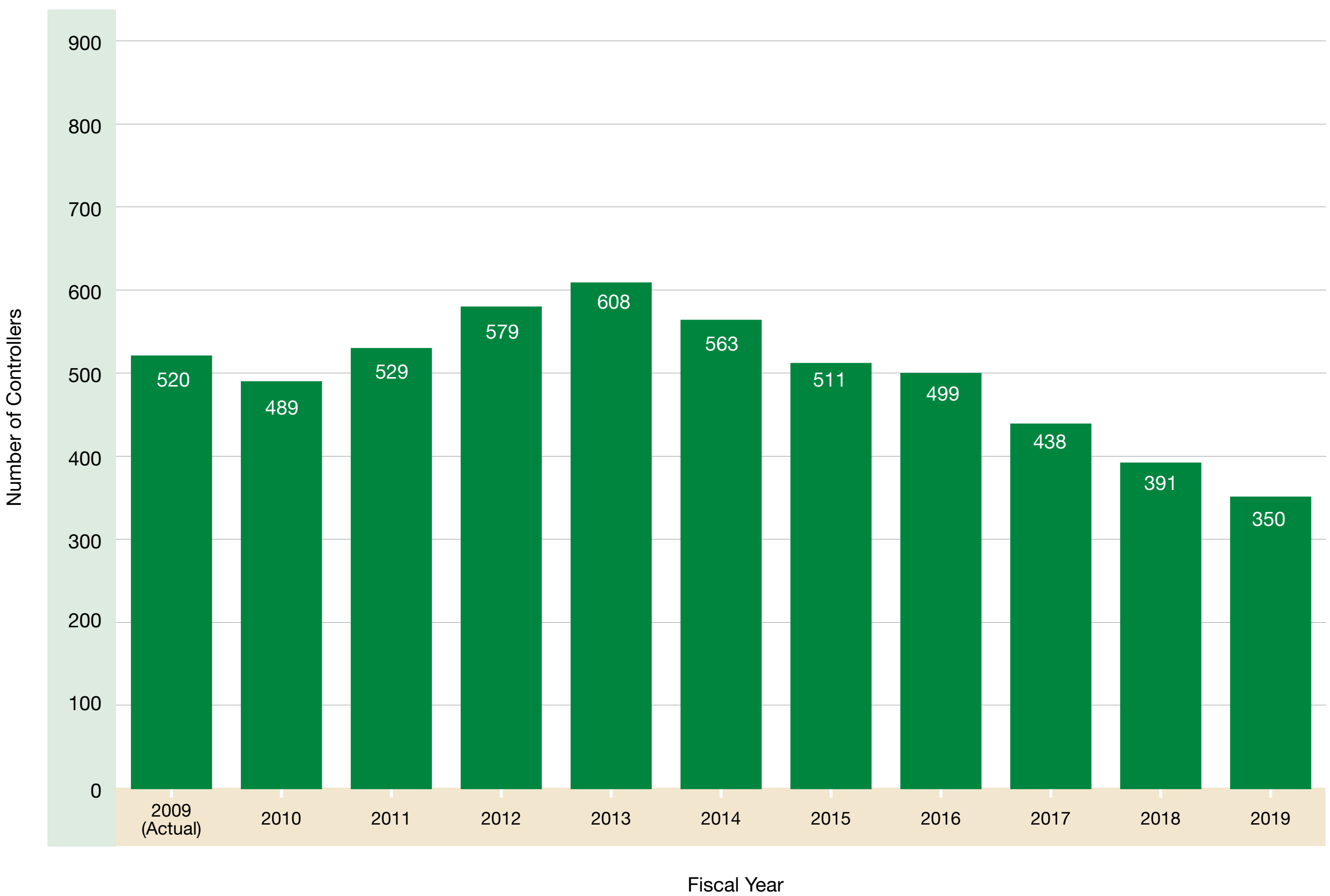
For the FY 2009 plan, the agency incorporated the most recent year of retirement data into the retirement histogram used for FAA projections.

As in prior years, the FAA projected future retirements by analyzing both the eligibility criteria of the workforce (Figure 4.3) and the pattern of retirement based on eligibility (Figure 4.4).

For each eligibility class (the year the controller first becomes eligible to retire), the agency applied the histogram percentage to estimate the retirements for each class by year.

In FY 2009, there were 520 controller retirements, versus a plan of 726. Year-to-date retirements for 2010 are trending below 2009.

Figure 4.5 Retirement Projection



Controller Losses Due to Resignations, Removals and Deaths

Estimated controller losses due to resignations, removals (excluding developmental attrition) and deaths are shown in Table 4.6.

Table 4.6 Controller Losses Due to Resignations, Removals and Deaths

2009*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
86	83	83	84	85	85	86	88	88	89	91

Developmental Attrition

Estimated losses of trainees who terminate from the FAA while still in developmental status are shown in Table 4.7. The large number of new hires since FY 2005 represents an opportunity to study developmental attrition rates more closely, and the agency has incorporated this information into the latest FAA forecasts.

Table 4.7 Developmental Attrition

2009*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
201	191	136	137	124	141	150	159	159	157	153

Academy Attrition

Estimated loss figures from new hires who are not successful in the FAA Academy training program, before they ever reach an air traffic control facility, are shown in Table 4.8.

Table 4.8 Academy Attrition

2009*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
105	52	47	59	53	71	69	71	70	68	67

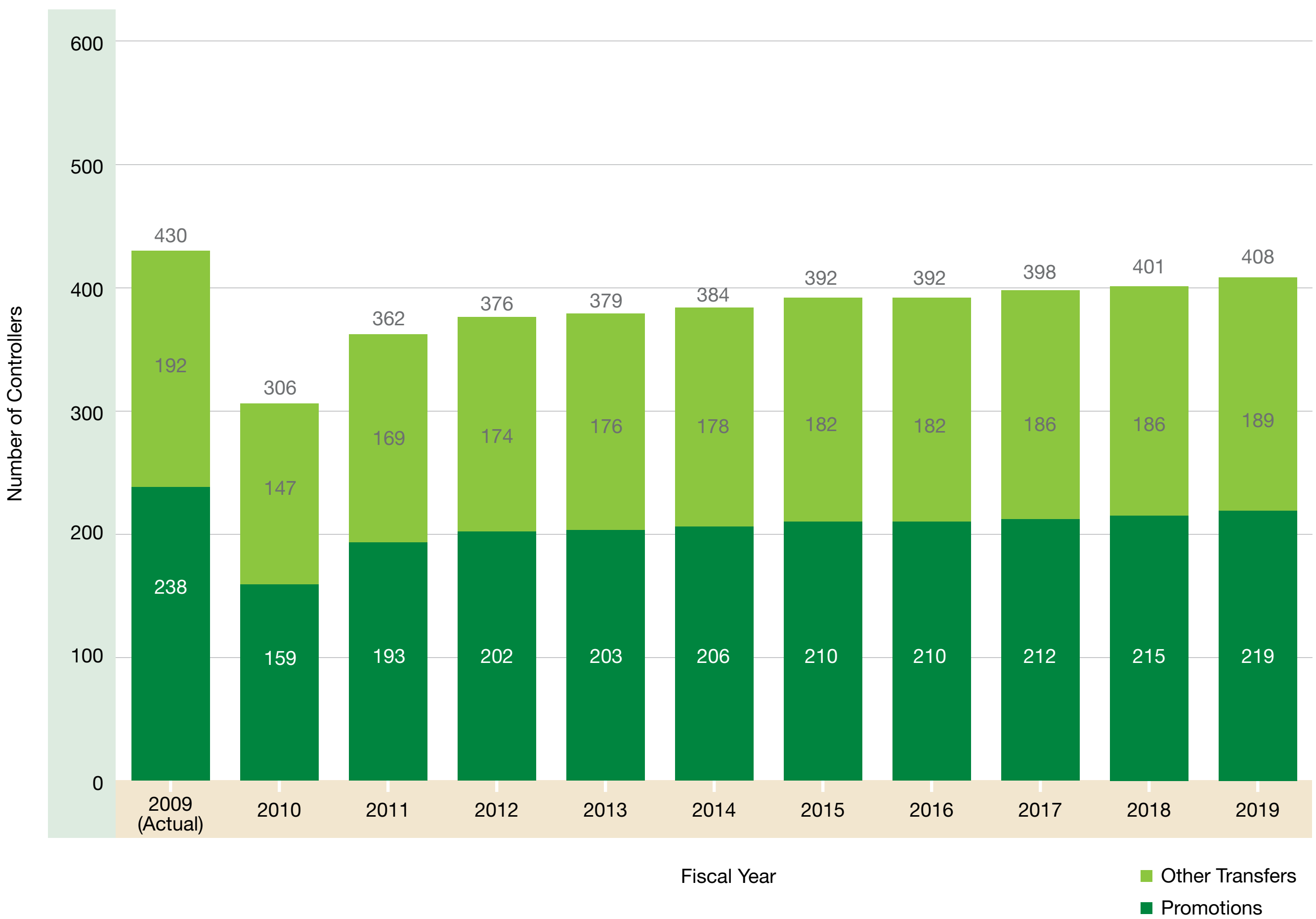
*Actual

Controller Losses Due to Promotions and Other Transfers

This section presents FAA estimates of controller losses due to internal transfers to other positions (staff support specialists, traffic management coordinators, etc.) and controller losses due to promotions to operational supervisor.

In addition to backfilling for supervisory attrition (retirements, promotions, etc.), the FAA expects that the supervisor workforce will likely grow along with the controller workforce, and these additional supervisors will also come from the controller population.

Figure 4.9 Controller Losses Due to Promotions and Other Transfers

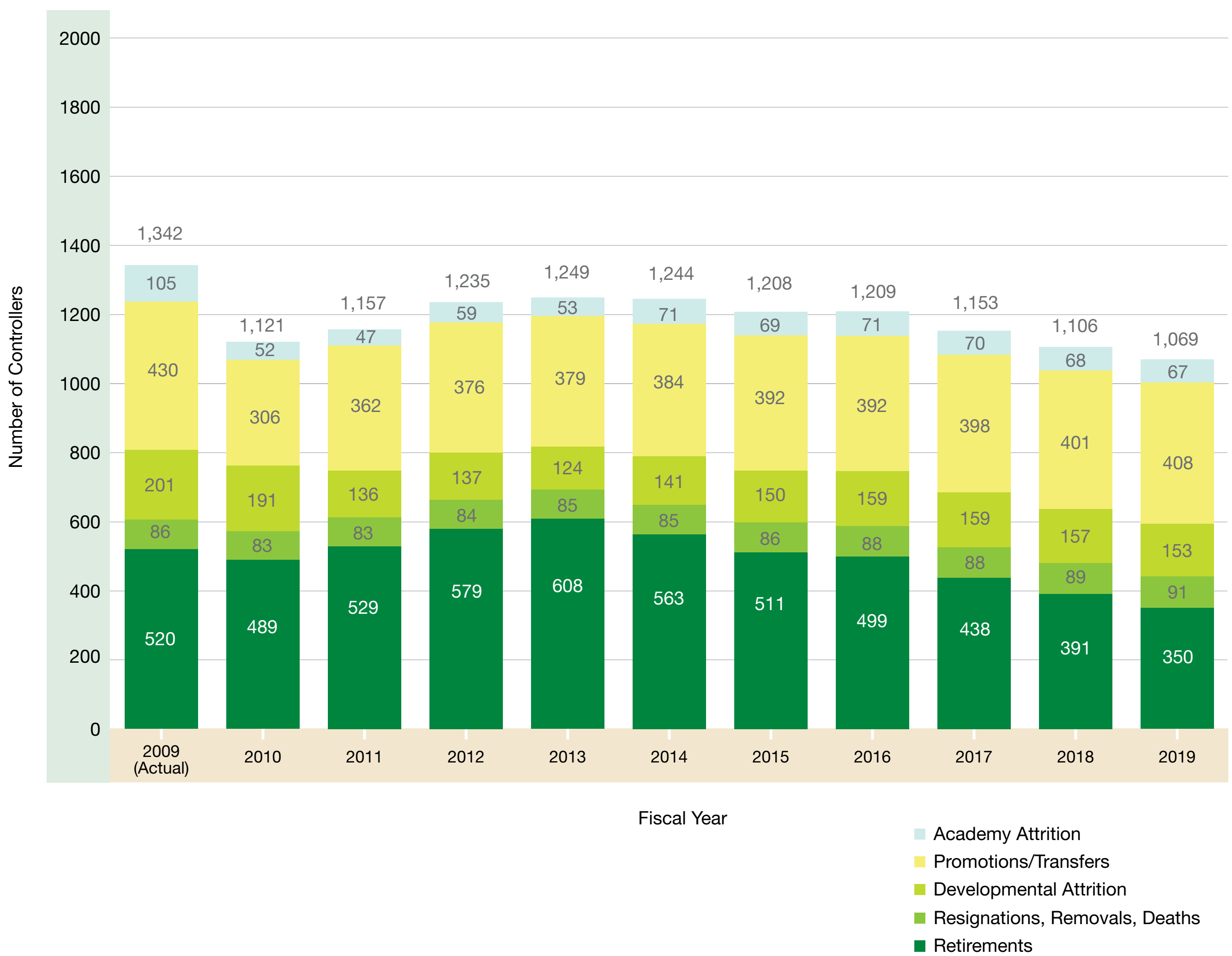


Total Controller Losses

The FAA projects a total loss of 11,751 controllers over the next 10 years.

Should losses outpace projections for FY 2010, the FAA will hire additional controllers to reach the end-of-year goal of 15,692 air traffic controllers on board. However, based on FY 2010 data to date, losses appear to be trending below these projections.

Figure 4.10 Projected Total Controller Losses



5 Hiring Plan

The FAA safely operates and maintains the NAS because of the combined expertise of its people, the support of technology and the application of standardized procedures. Every day tens of thousands of aircraft are guided safely and expeditiously through the NAS to their destinations.

Deploying a well-trained and well-staffed air traffic control workforce plays an essential role in fulfilling this responsibility. The FAA's current hiring plan has been designed to phase in new hires as needed. To staff the right number of people in the right places at the right time, the FAA develops annual hiring plans that are responsive to changes in traffic and in the controller workforce.

FAA hires new developmentals in advance of need to ensure that they are trained in time to offset future attrition, including retirements, promotions, etc. Proper execution of the hiring plan, while flexibly adapting to the dynamic nature of traffic and attrition, is critical to the plan's success. If the new developmentals are not placed correctly or if CPCs are not transferred from other facilities, shortages could occur at individual facilities that could affect schedules, overtime levels, or the requirement to use developmentals on position more often.

Staffing is and will continue to be monitored at all facilities and the agency will continue to take action at the facility level should adjustments become necessary due to changes in traffic volume, retirements or other attrition.

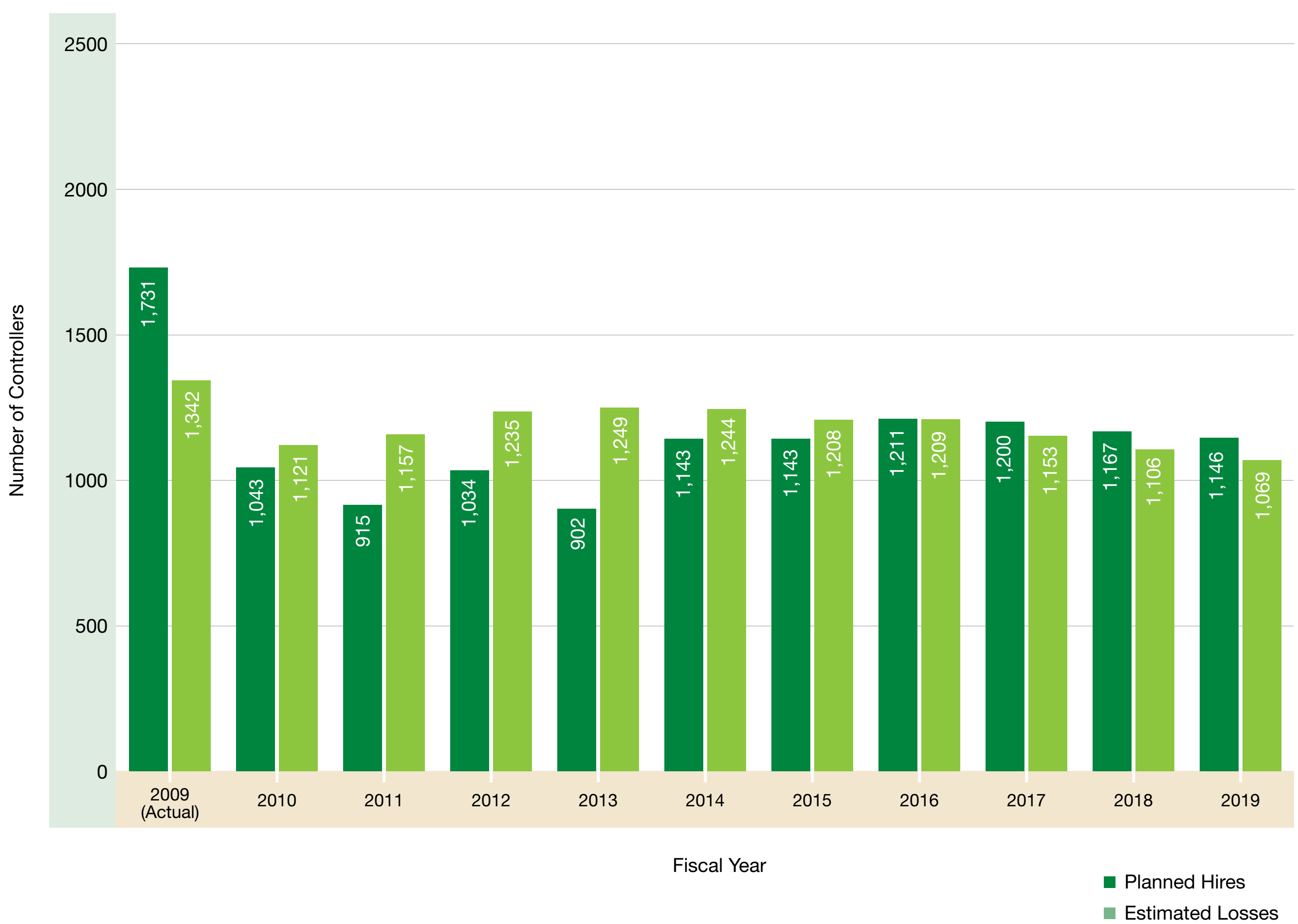
There are thousands of qualified controller candidates eager to be hired. Through various hiring sources, the FAA will maintain a sufficient number of applicants to achieve this hiring plan.

Controller Hiring Profile

The controller hiring profile is shown in Figure 5.1. The number of planned hires is lower than the number of expected losses in the near term due to above-plan hiring over the last few years, and the reduction in forecast traffic and attrition. The number of controllers projected to be hired through FY 2019 is 10,904.

The FAA hired 1,731 new controllers in FY 2009, and has hired more than 7,000 controllers over the last five years.

Figure 5.1 Controller Hiring Profile



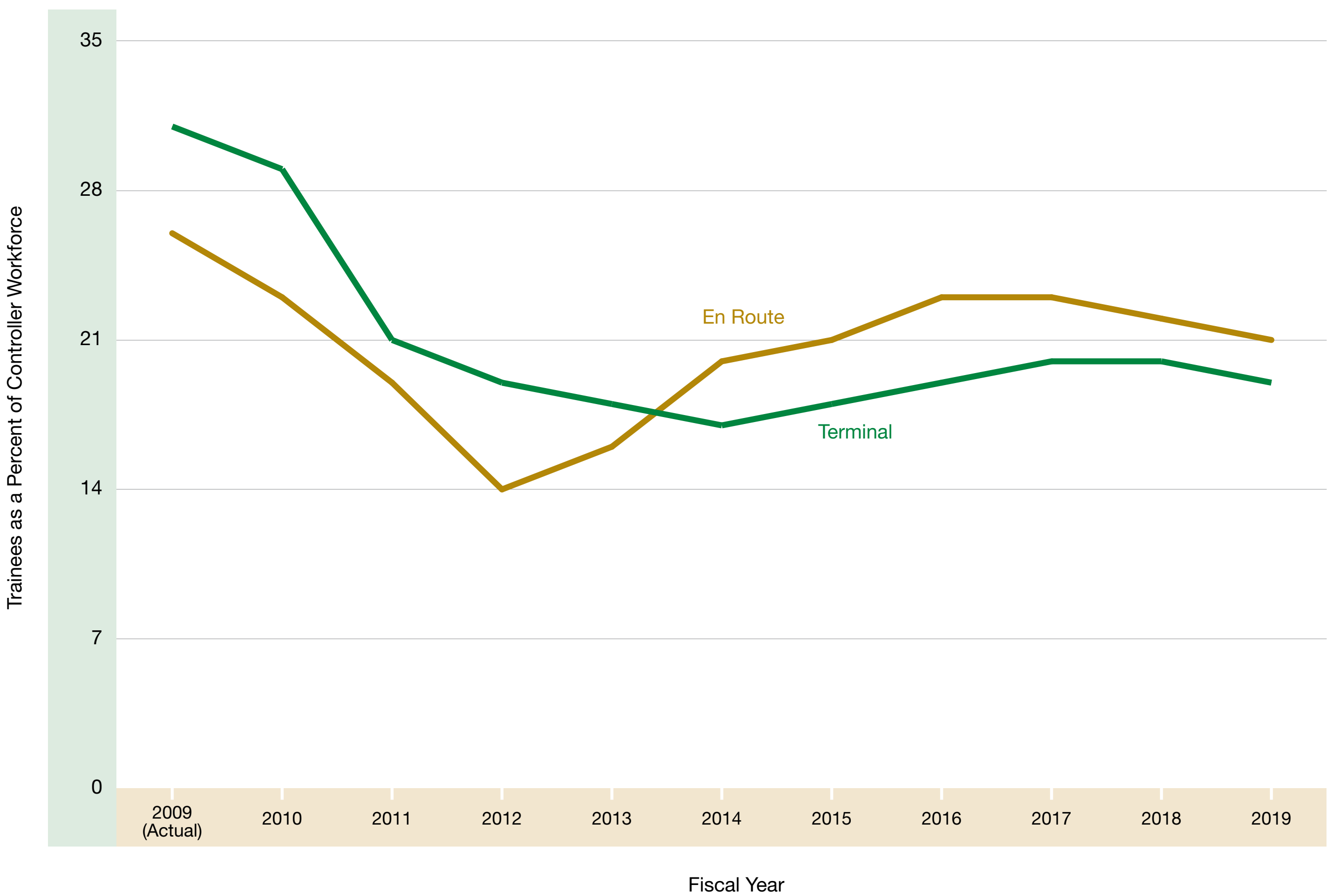
Trainee-to-Total-Controller Percentage

The hiring plan allows the FAA to maintain an appropriate number of trainees (developmental and CPC-IT) in the workforce. While the FAA strives to keep trainees below 35 percent for both terminal and en route controllers, it is not the only metric used by the agency to measure trainee progress.

Figure 5.2 shows the projected trainee to total controller percentages by year to 2019.

The percentage shown is calculated as the sum of CPC-ITs plus developmentals divided by all controllers.

Figure 5.2 Trainee-to-Total-Controller Percentage



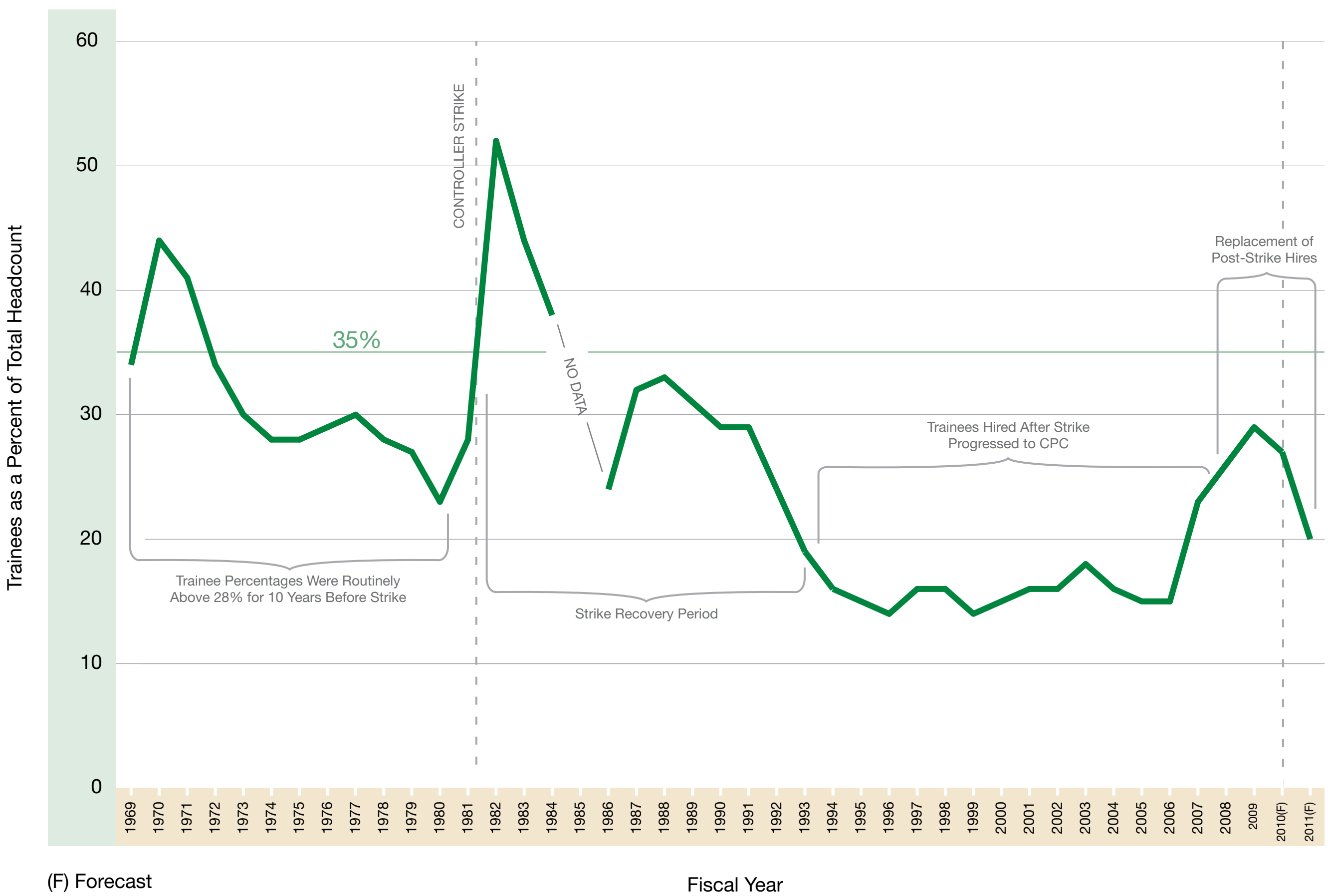
Before the 1981 strike, the FAA experienced trainee percentages ranging from 23 to 44 percent. Following the strike, through the end of the hiring wave in 1992, the trainee percentage ranged from 24 to 52 percent. When the post-strike hires became fully certified by the end of decade, the trainee percentage declined.

As the new controllers hired en masse in the early ’80s achieved full certification, the subsequent need for new hires dropped significantly from 1993 to 2006. This caused trainee percentages to reach unusually low levels. The FAA’s current hiring plans return trainee percentages to their historical averages for the near term.

By phasing in new hires as needed, the FAA will level out the significant training spikes and troughs experienced over the last 40 years.

Figure 5.3 shows historical trainee percentages from 1969 to present.

Figure 5.3 Historical Trainee Percentage



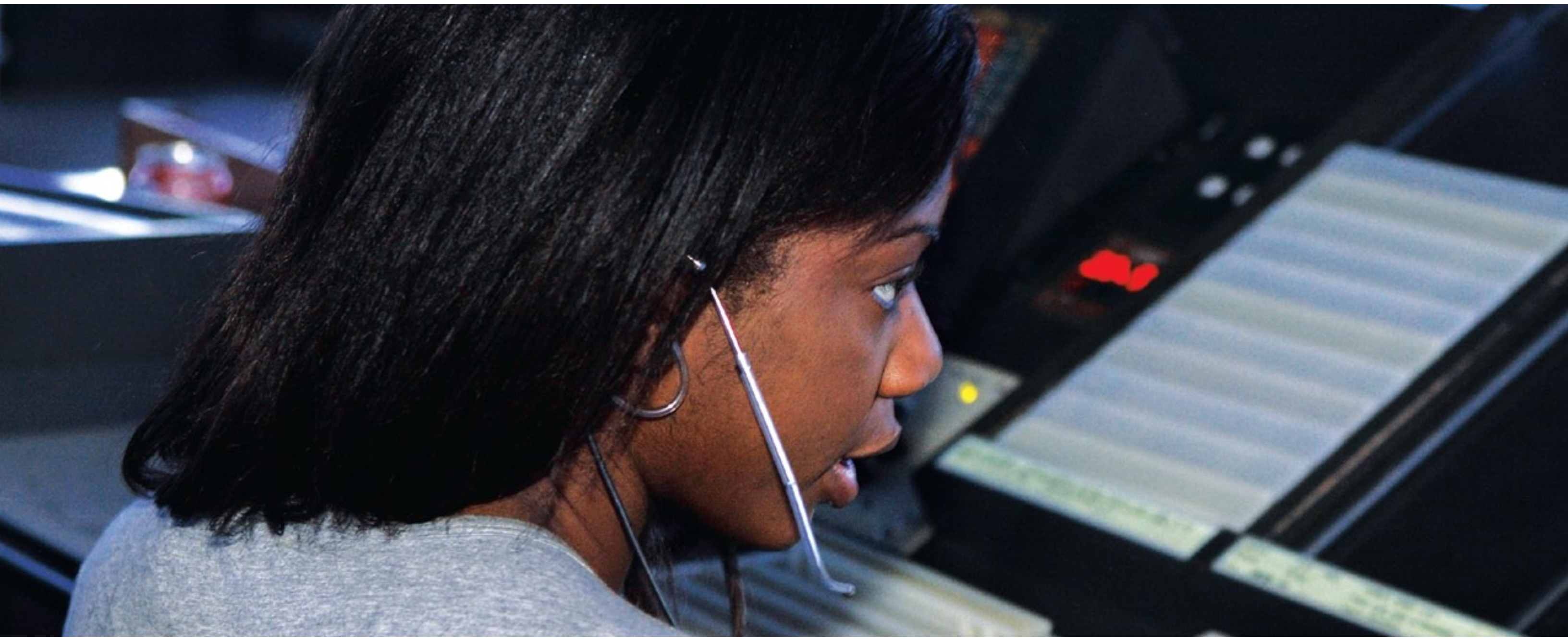
(F) Forecast

The FAA uses many metrics (e.g., 35 percent trainee to total controllers) to manage the flow of trainees while accomplishing daily operations. Facilities also meter training to coincide with a number of dynamic factors, including technology upgrades, new runway construction and recurrent proficiency training for existing CPCs. Facility training is enabled by many factors. Examples include the use of contract instructors, access to simulators, scheduled overtime, and the seasonality and complexity of operations.

In itself, the actual number of trainees does not indicate the progress of each individual in the training program or the additional utility they provide which can help to supplement other on-the-job training instruction and support operations. A key facility measure of training performance is whether trainees are completing their training within the agency's facility benchmarks. The average for terminal facilities is two years, with the larger facilities at three years. The benchmark is three years at en route facilities.

The FAA is achieving these goals by improving training and scheduling processes through increased use of simulators and better tracking of controller training using the FAA's national training database.

The FAA will continue to closely monitor facilities to make sure that trainees are progressing through each stage of training while also ensuring the safe and efficient operation of the NAS.



6 Hiring Process

Controller Hiring Sources

The FAA has three major categories of controller hiring sources.

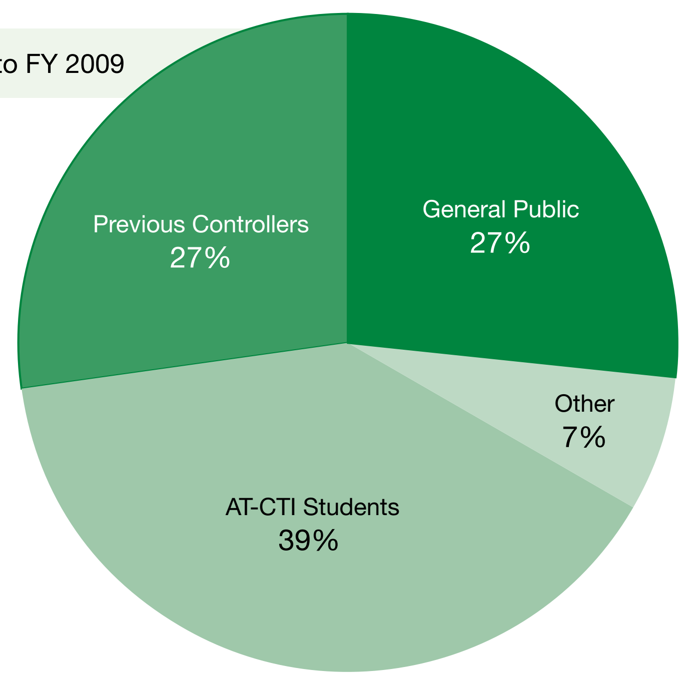
Previous controllers: These individuals have prior FAA or Department of Defense (civilian or military) air traffic control experience.

AT-CTI students: These individuals have successfully completed an aviation-related program of study from a school under the FAA's AT-CTI program.

General public: These individuals have no prior air traffic control experience and may apply for vacancies announced by the FAA.

The agency continues to recruit high-quality candidates into the controller workforce. Of the 1,731 controllers hired in FY 2009, 335 were graduates of AT-CTI schools while an additional 262 had previous air traffic control experience.

Figure 6.1 Controller Hiring Sources: FY 2005 to FY 2009



The FAA has "done what I can only say is a remarkable job in hiring replacements for controllers who have decided to leave."

DOT Inspector General
February 11, 2009
FAA Reauthorization Hearing
General Public Hiring Process

Fiscal year 2009 was the first year we saw a significant increase in the number of candidates from the general public. We expect this trend to reverse going forward because of the significant number of available candidates from our CTI and military sources.

Thousands continue to apply for air traffic controller jobs. The number of people in the hiring pool varies during the year as the agency recruits applicants, evaluates them and draws from the pool. However, the overall goal is to maintain a pool of between 2,000 and 3,000 candidates available for consideration by selection panels at any one time. During FY 2009, the agency's recruitment and advertising activities enabled the FAA to successfully maintain this pool in the target range.

In 2009, the FAA selected five new colleges and universities to be part of the AT-CTI program. Currently there are 36 schools in the program, including the five new schools. The partnership between the FAA and the colleges and universities in the AT-CTI program will continue to contribute to meeting air traffic controller hiring goals in the coming years.

In the past five years, FAA has hired a significant number of AT-CTI graduates. The goal is to have at least 40 high quality schools producing 1,000 to 1,500 graduates per year.

Streamlined Hiring Process

In January 2006, the FAA centralized the controller hiring process, streamlining it while enabling individual facilities to identify vacancies and select prospective new controllers as much as one year in advance. The agency was also able to improve the security and medical clearance process.

To augment the centralized hiring activities regularly conducted in Oklahoma City, the FAA implemented Pre-Employment Processing Centers (PEPCs) to reduce the time it takes to complete pre-hire screenings such as medical examinations, psychological and drug testing, fingerprinting and security clearance application processes. Some recruits may now receive final offer letters from the FAA in as little as one month after their interview – a process that previously could take up to six months.

The FAA conducted eight PEPCs in FY 2009, at which the agency processed more than 1,500 controller applicants. The FAA is evaluating the use of other clearance processing options for the future.

To be hired as an air traffic controller, applicants from the general public must achieve a qualifying score on the Air Traffic Selection and Training (AT-SAT) examination. The AT-SAT tests for characteristics needed to perform effectively as an air traffic controller. Some of these include numeric ability, prioritization, planning, tolerance for high intensity, decisiveness, visualization, problem solving and movement detection.

Applicants must also meet the following requirements:

- Complete three years of progressively responsible work experience, or a full four-year course of study leading to a bachelor's degree, or an equivalent combination of work experience and college credits
- Be a U.S. citizen
- Be able to speak English clearly enough to be understood over radios, intercoms and similar communications equipment
- Be no older than age 30
- Pass stringent medical and psychological exams, an extensive security background investigation and an interview

Complete details can be found on the FAA's Web site at http://www.faa.gov/jobs.

Recruitment

The FAA has successfully attracted thousands of qualified candidates to fill controller positions. Based on the agency's hiring needs, vacancy announcements are issued to recruit candidates from the general public, AT-CTI graduates, retired military controllers, veterans eligible under the Veterans' Recruitment Appointment Authority, as well as current and former civilian air traffic controllers.

The agency employs a broad-based recruitment approach that uses a variety of media outlets to reach the widest population of candidates. Recruitment materials are designed to capitalize on markets that provide information to a variety of demographics such as traditionalists, baby boomers, generation X, millennials, all ethnicities, people with disabilities and military veterans. These strategies include community outreach events, job fairs, employee association events, military sponsored events, direct e-mailings, Internet recruitment, internship opportunities, newspaper and magazine advertisements, promotional videos, and television and radio advertisements.

The agency also can offer eligible developmental controllers Montgomery GI Bill education benefits. These new veterans' training initiatives will help meet controller hiring goals.

7 Training

The primary goal of the FAA's technical training and development programs is to ensure that our air traffic controllers have all the necessary skills and behaviors to perform their jobs effectively and maintain the safety of the NAS.

As we continue to replace large numbers of retiring controllers, effective training is a key factor in completing a smooth transition and maintaining the FAA's role as the premier air traffic service provider.

The FAA has significant capabilities both at the FAA Academy and in the field to meet the demands for initial certification, refresher, proficiency, skills and remedial training. The FAA continues to invest in making training more effective by gearing it toward the skills needed for successful career-long development. From better screening for new recruits to improved course design and advanced simulation, the agency is building the controller workforce of the future.

The Training Process

The training process begins at the FAA Academy in Oklahoma City. Developmental controllers learn the fundamentals of air traffic control for their particular option: en route, tower or terminal radar. After successfully completing academy training, developmental controllers report to their assigned field facility to continue their training.

During the training process at field locations, developmental controllers achieve certification on each position as they move through the stages of training. Developmental controllers who fail to certify may be removed from service or reassigned to a less complex facility in accordance with agency procedures. The ultimate goal of the training program is for the controller to achieve certification on all positions and attain CPC status.

Developmental controllers who have certified on control positions can work independently on those positions without an on-the-job training instructor. Facilities often allow developmental controllers to work under the direction of a supervisor to gain experience and to supplement staffing.

The on-the-job training process is designed to provide developmental controllers sufficient seasoning time as well as opportunities to develop their skills as they progress toward becoming CPCs.

This process results in a more-seasoned trainee. However, no trainee works live traffic independently until the controller has been certified to work that traffic position. Safety is the FAA's No. 1 priority.

Reduced Training Time

The FAA continues to reduce training time for terminal and en route controllers. It no longer takes from three to five years to fully train an air traffic controller. Depending on the complexity of the facility, controllers are now being trained in two to three years. The FAA achieved this reduction not by cutting training time, but by improving the training and scheduling processes, and through increased use of simulators.

The FAA works to adjust capacity at the FAA Academy and improve basic courses. The combination of efforts results in controller developmentals completing training faster. At the academy, developmental controllers must demonstrate basic academic knowledge and necessary controller skills prior to commencing field facility training.

Simulators in air traffic facilities are reducing on-the-job training time. Use of this training resource also frees instructors to control traffic.

Table 7.1 Years to Certify

Fiscal Year	En Route	Terminal	Overall
2008	2.54	1.00	1.64
2009	2.62	1.38	1.89

Note: Average training times are going up in Terminal because many of those remaining in the training pipeline are at larger facilities that require longer training times. In En Route, training the controller workforce transitioning to En Route Automation Modernization (ERAM) took precedence over initial training and slightly increased the average completion time. On average, we still expect developmentals to complete their training in two to three years.

National Training Data Tracking System

The FAA's national training database for en route and terminal training provides histories of developmentals as well as reports on completions, developmentals in training, and failures. The database tracks controller training through certification and provides a timely picture of the FAA's controller training progress. The database has been upgraded to provide more accurate facility training data for developmental controllers as well as different facility, attrition and stage training options. This information is used by multiple organizations within the FAA for training and failure reports.

Developmental controllers go through various stages of training at their facilities with a maximum number of days allotted for each stage. The FAA's goal is to have 90 percent of controller developmentals on track with training. Developmental controllers are considered to be on track when they progress through the required stages at or below the allotted number of days. Developmentals who exceed the allotment are monitored by both the facility and headquarters.

A training failure occurs when a developmental's training is halted by either management or the trainee pending a training review. The review may result in a termination of employment (attrition) or assignment to another air traffic controller position at a different, usually less complex, facility. Training failures that transfer to a different facility and successfully certify there can offset the requirement for a new hire. Training attrition however, can result in the need for a replacement new hire.

Some trainees who may or may not have failed training ultimately attrit from the FAA. These trainee attritions are tracked closely, as they could result in the need for a replacement new hire. Trainee attrition is forecast in Chapter 4, Table 4.7.

Multi-Path Hiring and Training

The FAA hires controllers from multiple sources. The training process for newly hired controllers differs depending on applicant qualifications and the type of facility assignment. The amount and type of training depends on the applicant's education, experience and type of facility the new hire will be assigned to support.

The multi-path training program was designed to accommodate newly hired individuals with a variety of education and experience. The goal of this training program is to provide air traffic facilities with developmental controllers prepared to begin training at the facility.

Knowledge Transfer

Today, the FAA brings in retired FAA air traffic controllers as contract instructors to train the new workforce. By harnessing their valuable air traffic expertise, these experts can focus solely on training the next generation of controllers, rather than moving back and forth between working traffic and on-the-job training.

With these improvements and our comprehensive focus on training, the FAA is confident that the agency will be able to successfully train the number of controllers needed to staff the NAS.

Academy Training

The FAA Academy trains developmental controllers using lecture, computer-based instruction, medium-fidelity simulation, and high-fidelity simulation. The academy lays the foundation for developmental controllers by teaching fundamental air traffic control procedures that are used across the country. The focus of the academy is to improve the efficiency of the training by combining proven adult learning concepts with the latest in simulation technology. When developmental controllers graduate from the academy, they are prepared to begin training at their assigned facility and eventually complete the training required to reach CPC status.

Facility Training

After graduating from the FAA Academy, developmental controllers begin facility training in the classroom, where they learn facility-specific rules and procedures. Often, these rules and procedures are practiced in simulation. This training is often conducted by contract instructors. After classroom and simulation training is complete, a developmental will begin on-the-job training on an operational position. This training is conducted exclusively by CPCs who observe and instruct developmental controllers as they work the control position.

Each control position is allotted a minimum and maximum number of on-the-job training hours. Based upon the recommendation of the training team, a developmental can be certified by the supervisor on a control position anywhere between the minimum and maximum number of hours. Developmental controllers achieve certification on each position as they move through the stages of training. The result at the end of training is achieving certification on all positions, or CPC.

A developmental controller who fails to certify can be removed from service, or reassigned to a less complex facility in accordance with agency procedures.

The on-the-job training process provides developmental controllers sufficient seasoning time and opportunities to develop their skills as they progress toward becoming CPCs.

FAA Order 3120.4

All controller training requirements are standardized and detailed in FAA Order 3120.4, Air Traffic Technical Training. Facility training is conducted in stages and consists of a combination of classroom, simulation and on-the-job training. Each stage of training represents a different control position or group of control positions, depending upon whether the facility is en route or terminal.

Certification is required at the end of every training stage. Developmentals cannot work live traffic until they have been certified on the appropriate position.

The agency is in final review of a newly rewritten technical training order to incorporate checklists of controller tasks into the on-the-job training program. These checklists will be used to make sure on-the-job training is consistent across the nation.

Academy Simulators

In FY 2009, the FAA continued to increase terminal simulation capabilities at the FAA Academy by replacing six medium-fidelity Enhanced Debrief Stations (EDS) with four high-fidelity Tower Simulation Systems (TSS). This initiative is in response to requests for a state-of-the-art training environment with equipment compatible to that used in the field. Identical TSS systems are also being deployed in field facilities, resulting in a more seamless transition and continuity in training. The TSS allows for improved efficiency in training procedures and optimizes training time at both the academy and in the field.

Tower Simulators

The Tower Simulator System provides realistic training for tower air traffic controllers in a non-operational environment. The TSS is a full-scale Air Traffic Control Tower simulator providing an interactive, highly realistic environment for controller training. It can support up to four simultaneous positions including local, ground and flight data/clearance delivery and coordinator. Controllers learn three things in the tower simulator, all of which must become second nature: (1) knowledge of the particular airport—runways, taxiways, restrictions and weather impacts; (2) how to use the correct phraseology; and (3) application of procedures, such as separations and size restrictions. The simulator exercises provide tower controllers the tools to improve situational awareness, decision-making, effective communication and workload management.

The problems in the simulators are designed to be more difficult than the most challenging occurrence at the particular airport.

The tower simulator program augments on-the-job-training by placing developmentals in a real-time tower-traffic environment and ensuring that they receive efficient and consistent training. The systems are capable of providing high-fidelity site-specific simulation training with 360-degree imagery of the airfield, simulated traffic, obstacles and weather. The simulators are programmed with scenarios and occurrences exclusive to those airports, using realistic local call signs for aircraft. Trainers can program departure and arrival paths and even include airport construction, new runways, weather patterns and other situations particular to the location.

Trainees can demonstrate initial proficiency at one of the four tower cab positions using the simulator. During simulation, instructors direct "pseudo pilots" who enter aircraft control instructions into an input terminal. The simulator provides synthetic voice response and voice recognition to allow the student to talk to the simulator. The voice recognition system interprets the student's commands and translates them into actual aircraft movement depicted on the screen. The tower simulator acknowledges students' instructions using synthetic voice. Under certain complex traffic scenarios, pseudo pilots respond directly to the student, overriding the voice response capability. A recorded playback feature allows instructors to review and evaluate performance with the student after the training session.

The TSS provides an unlimited number of different airport developed databases. For example a simulator in Los Angeles can, within minutes, display and simulate operations at any airport that has a database, such as John Wayne, San Diego or Philadelphia airports. The Tower Simulator System simulates operations at the "hub" facility. In general each satellite facility within commuting distance of the hub can have a database on file at the simulator location. This allows one simulator to train developmental controllers from several nearby airports.

In the absence of a simulator, towers must rely solely on live air traffic to train. This training method is dependent on inconsistent or unpredictable live external variables such as traffic, weather and unusual situations.

With simulators, training no longer depends on the density or complexity of actual air traffic operations. Simulating the real-time tower-traffic environment provides a uniform training format for trainees to develop the necessary skills and experience that would take much longer solely through on-the-job training. Through the use of tower simulation systems, students benefit from consistent delivery of simulated traffic, weather and unusual situations.

The system provides significant improvements to existing training operations. It eliminates the need for pre-emptive intervention on the part of an instructor to avoid a possible hazardous situation, allowing students to "work through" the scenario until they can consistently generate a successful outcome. The simulator system does not interact with actual air traffic control operational systems and poses no threat to service. It realistically replicates operations in an absolutely safe environment.

In addition to initial training, the simulator system provides for refresher training to heighten awareness of controllers by generating seldom seen operations and airport conditions. Controllers who have recently been assigned to a new facility can also use the system, reducing their training time.

The TSS is also used in non-training applications. It aids in site surveys for proposed airfields and assists in the planning of new runways and the changing of local arrival or departure procedures in an accurate and safe simulated environment.

TRACON Simulators

The FAA has several simulation systems in the TRACON environment. The FAA has deployed simulation creation tools, while developing and testing additional tools and platforms for facilities that have little or no simulation capabilities. Requirements are being developed for simulation capabilities that will address new platforms and technology to meet future training needs.

En Route Simulators

Upgraded simulation technology has been installed at six en route control facilities as part of the FAA's effort to improve and expedite new controller training.

In 2007 and 2008, the En Route Training Simulation System (ERTSS) was installed at en route centers in Albuquerque, N.M., Denver, Miami, Salt Lake City, Atlanta and Jacksonville, Fla., with an additional system installed at the FAA Academy. The system at Salt Lake City was moved to Chicago Center in May 2009. ERTSS is designed to supplement the dynamic simulation radar controller training laboratory, more commonly referred to as "DYSIM" (in place at all centers).

ERTSS has the ability to stop and restart training scenarios, giving instructors the opportunity to discuss issues with their students as they occur. ERTSS also has more realistic depictions of weather and its effect on air traffic. Remote pilot operator positions are also much easier to incorporate, making the simulation more realistic for students.

The base of the radar coverage using ERTSS is also more realistic. It is possible to mask what is going on below the altitudes of a facility's radar coverage, replicating what a controller can and cannot see in real life. ERTSS also includes enhanced weather simulation capabilities which allow weather to "move" and also let upper winds be introduced. With ERTSS, students learn exactly what happens to the speed and position of an aircraft when they turn it into the wind.

Emergencies can be scripted into problems in such a way that the software automatically cues remote pilot operators to communicate everything that needs to be said. Instructors, using their own link to the remote operators, can also spontaneously adjust elements within a problem.

ERTSS capabilities are similar to the training simulations incorporated into the En Route Automation Modernization (ERAM) system, which is replacing the 40-year-old Host computer software.

ERAM starts to come online at individual centers in FY 2010. ERAM incorporates simulation capabilities that will eliminate the need for ERTSS.

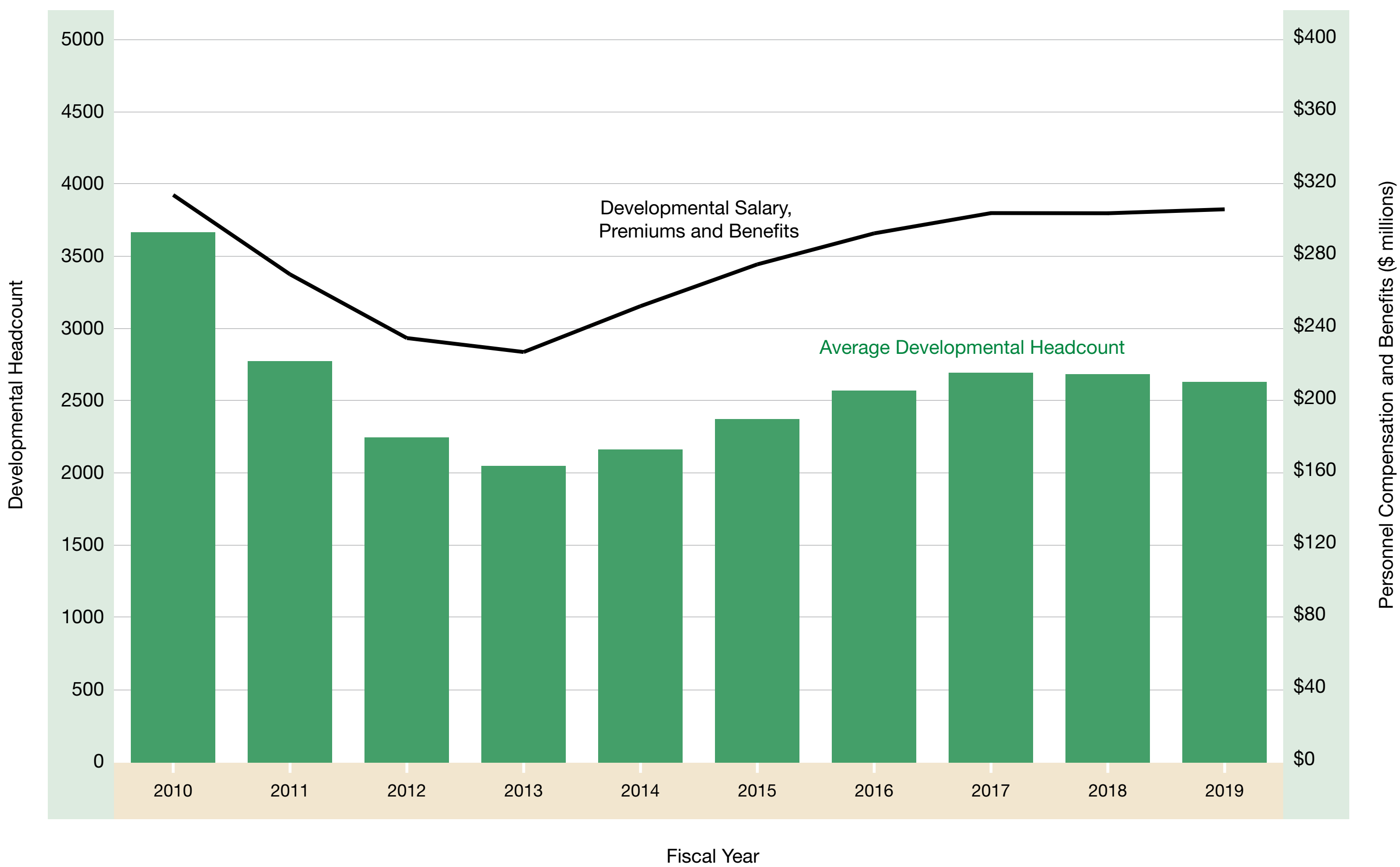
The FAA is evaluating modifications to ERTSS capabilities for use in TRACON environments to supplement simulation used in these facilities.

8 Funding Status

In addition to direct training costs, the FAA will incur salary and other costs for developmentals before they certify. The average cost of a developmental in FY 2010 is projected to be $85,483.

Figure 8.1 depicts expected annual compensation costs of developmentals, as well as the expected number of developmentals by year through 2019. As training takes two to three years, the chart depicts a rolling total of hires and costs from the current and previous years. It also incorporates the effect of the new controller contract.

Figure 8.1 Estimated Cost of Developmentals Before Certification



Appendix:
2010 Facility Staffing Ranges

The following presents controller staffing ranges, by facility, for en route and terminal air traffic control facilities for FY 2010. These ranges include the number of controllers needed to perform the work. While most of the work is accomplished by CPCs, work is also being performed in facilities by CPC-ITs and position-qualified developmentals who are proficient, or checked out, in specific sectors or positions and handle workload independently. These position-qualified controllers are the focus of staffing-to-traffic efforts.

En Route Facility Controller Staffing Ranges

Total Controller Staffing Ranges include CPCs and trainees (CPC-ITs and Developmentals)

		Actual on Board as of 09/26/09				Total Controller Staffing Ranges	
ID	**Facility Name**	**CPC**	**CPC-IT**	**Developmental**	**Total**	**Low**	**High**
ZAB	Albuquerque ARTCC	183	5	92	280	171	209
ZAN	Anchorage ARTCC	88	0	32	120	80	98
ZAU	Chicago ARTCC	358	5	70	433	270	330
ZBW	Boston ARTCC	221	0	75	296	180	220
ZDC	Washington ARTCC	270	2	72	344	251	307
ZDV	Denver ARTCC	241	0	96	337	218	266
ZFW	Fort Worth ARTCC	266	2	64	332	212	260
ZHU	Houston ARTCC	243	4	59	306	209	255
ZID	Indianapolis ARTCC	306	1	92	399	237	289
ZJX	Jacksonville ARTCC	265	0	66	331	212	260
ZKC	Kansas City ARTCC	241	1	76	318	198	242
ZLA	Los Angeles ARTCC	228	2	58	288	216	264
ZLC	Salt Lake ARTCC	153	0	70	223	139	169
ZMA	Miami ARTCC	212	1	81	294	199	243
ZME	Memphis ARTCC	249	2	59	310	225	275
ZMP	Minneapolis ARTCC	274	2	48	324	196	240
ZNY	New York ARTCC	243	0	89	332	248	303
ZOA	Oakland ARTCC	186	7	43	236	178	218
ZOB	Cleveland ARTCC	350	3	64	417	246	300
ZSE	Seattle ARTCC	152	1	56	209	108	132
ZSU	San Juan	38	1	11	50	43	53
ZTL	Atlanta ARTCC	289	36	131	456	284	347
ZUA	Guam	12	2	8	22	14	17

Terminal Facility Controller Staffing Ranges

Total Controller Staffing Ranges include CPCs and trainees (CPC-ITs and Developmentals)

		Actual on Board as of 09/26/09				Total Controller Staffing Ranges	
ID	**Facility Name**	**CPC**	**CPC-IT**	**Developmental**	**Total**	**Low**	**High**
A11	Anchorage TRACON	20	0	13	33	21	25
A80	Atlanta TRACON	63	5	25	93	84	102
A90	Boston TRACON	56	6	6	68	48	58
ABE	Lehigh Valley International Airport	19	4	6	29	21	25
ABI	Abilene Regional Airport	15	1	7	23	17	21
ABQ	Albuquerque International Sunport Airport	29	2	9	40	31	37
ACK	Nantucket Memorial Airport	9	0	2	11	11	13
ACT	Waco Regional Airport	12	1	4	17	14	18
ACY	Atlantic City International Airport	23	1	6	30	21	25
ADS	Addison Airport	12	1	3	16	9	11
ADW	Andrews AFB	11	0	5	16	11	13
AFW	Fort Worth Alliance Airport	13	2	2	17	12	14
AGC	Allegheny County Airport	8	0	7	15	11	13
AGS	Augusta Regional At Bush Field Airport	13	0	8	21	12	14
ALB	Albany International Airport	20	1	5	26	22	26
ALO	Waterloo Municipal Airport	7	0	11	18	10	12
AMA	Amarillo International Airport	16	0	5	21	16	20
ANC	Ted Stevens Anchorage International Airport	20	1	6	27	21	25
APA	Centennial Airport	17	2	1	20	16	20
APC	Napa County Airport	8	0	3	11	6	8
ARB	Ann Arbor Municipal Airport	9	0	1	10	6	8
ARR	Aurora Municipal Airport	8	1	4	13	8	10
ASE	Aspen Pitkin County/Sardy Field Airport	9	1	5	15	12	14
ATL	The William B Hartsfield Atlanta International Airport	37	9	6	52	47	57
AUS	Austin-Bergstrom International Airport	31	0	12	43	32	39
AVL	Asheville Regional Airport	15	1	6	22	14	18
AVP	Wilkes-Barre/Scranton International Airport	15	0	10	25	16	20
AZO	Kalamazoo/Battle Creek International Airport	16	0	9	25	16	20
BDL	Bradley International Airport	14	0	3	17	12	14
BED	Laurence G Hanscom Field Airport	15	0	2	17	11	13
BFI	Boeing Field/King County International Airport	17	0	6	23	18	22
BFL	Meadows Field Airport	14	0	3	17	17	21
BGM	Binghamton Regional/Edwin A Link Field Airport	9	1	4	14	11	13

ID	Facility Name	Actual on Board as of 09/26/09 CPC	CPC-IT	Developmental	Total	Total Controller Staffing Ranges Low	High
BGR	Bangor International Airport	19	0	3	22	18	22
BHM	Birmingham International Airport	25	1	5	31	23	28
BIL	Billings Logan International Airport	19	0	4	23	15	19
BIS	Bismarck Municipal Airport	12	0	2	14	12	14
BJC	Jeffco Airport	12	0	4	16	9	11
BNA	Nashville International Airport	31	4	15	50	32	40
BOI	Boise Air Terminal / Gowen Field Airport	18	2	6	26	22	26
BOS	General Edward Lawrence Logan International Airport	34	0	6	40	26	32
BPT	Southeast Texas Regional Airport	14	0	2	16	9	11
BTR	Baton Rouge Metropolitan, Ryan Field Airport	9	2	12	23	15	19
BTV	Burlington International Airport	14	2	7	23	14	18
BUF	Buffalo Niagara International Airport	22	2	4	28	25	31
BUR	Burbank-Glendale-Pasadena Airport	18	2	2	22	13	15
BWI	Baltimore-Washington Thurgood Marshall Intl Airport	25	0	2	27	21	25
C90	Chicago TRACON	69	11	25	105	81	99
CAE	Columbia Metropolitan Airport	17	3	9	29	23	28
CAK	Akron Canton Regional Airport	13	3	11	27	18	22
CCR	Buchanan Field Airport	9	0	2	11	7	9
CDW	Essex County Airport	9	2	2	13	9	11
CHA	Lovell Field Airport	16	2	4	22	14	18
CHS	Charleston AFB / International Airport	22	1	8	31	20	24
CID	The Eastern Iowa Airport	14	0	7	21	14	18
CKB	Harrison / Marion Regional Airport	11	0	3	14	13	15
CLE	Cleveland Hopkins International Airport	36	5	19	60	41	51
CLT	Charlotte / Douglas International Airport	51	12	29	92	71	87
CMA	Camarillo Airport	9	2	4	15	9	11
CMH	Port Columbus International Airport	38	1	14	53	32	39
CMI	University Of Illinois-Willard Airport	15	0	7	22	16	20
CNO	Chino Airport	10	0	2	12	9	11
COS	City Of Colorado Springs Municipal Airport	26	0	9	35	23	29
CPR	Natrona County International Airport	8	0	4	12	9	11
CPS	St. Louis Downtown Airport	14	0	1	15	9	11
CRP	Corpus Christi International Airport	28	0	12	40	38	46
CRQ	Mc Clellan-Palomar Airport	9	0	3	12	11	13
CRW	Yeager Airport	13	1	6	20	17	21
CSG	Columbus Metropolitan Airport	3	2	2	7	5	7
CVG	Cincinnati / Northern Kentucky International Airport	48	0	20	68	54	66

ID	Facility Name	Actual on Board as of 09/26/09 CPC	CPC-IT	Developmental	Total	Total Controller Staffing Ranges Low	High
D01	Denver TRACON	31	12	22	65	61	75
D10	Dallas - Fort Worth TRACON	57	11	38	106	71	87
D21	Detroit TRACON	37	5	11	53	43	53
DAB	Daytona Beach International Airport	38	0	26	64	48	58
DAL	Dallas Love Field Airport	19	3	2	24	18	22
DAY	Ames M Cox Dayton International Airport	28	0	11	39	23	28
DCA	Ronald Reagan Washington National Airport	24	1	4	29	22	26
DEN	Denver International Airport	31	6	5	42	34	42
DFW	Dallas / Fort Worth International Airport	52	6	9	67	46	56
DLH	Duluth International Airport	16	1	5	22	16	20
DPA	Dupage Airport	11	0	4	15	10	12
DSM	Des Moines International Airport	17	2	9	28	20	24
DTW	Detroit Metropolitan Wayne County Airport	28	2	8	38	29	35
DVT	Phoenix Deer Valley Airport	13	1	5	19	17	21
DWH	David Wayne Hooks Memorial Airport	15	2	2	19	12	14
E10	High Desert TRACON	11	5	9	25	24	30
ELM	Elmira / Corning Regional Airport	12	0	1	13	12	14
ELP	El Paso International Airport	15	1	5	21	18	22
EMT	El Monte Airport	14	1	1	16	7	9
ERI	Erie International / Tom Ridge Field Airport	12	1	9	22	14	17
EUG	Mahlon Sweet Field Airport	18	0	6	24	18	22
EVV	Evansville Regional Airport	16	0	6	22	16	20
EWR	Newark Liberty International Airport	26	3	5	34	30	36
F11	Central Florida TRACON	34	17	7	58	48	58
FAI	Fairbanks International Airport	11	1	5	17	20	24
FAR	Hector International Airport	18	1	3	22	16	20
FAT	Fresno Yosemite International Airport	14	2	13	29	23	28
FAY	Fayetteville Regional / Grannis Field Airport	18	2	9	29	19	23
FCM	Flying Cloud Airport	11	1	4	16	8	10
FFZ	Falcon Field Airport	15	1	2	18	12	14
FLL	Fort Lauderdale / Hollywood International Airport	23	0	6	29	21	25
FLO	Florence Regional Airport	9	1	8	18	11	13
FNT	Bishop International Airport	20	0	4	24	14	18
FPR	St Lucie County International Airport	13	0	1	14	8	10
FRG	Republic Airport	11	0	3	14	11	13
FSD	Joe Foss Field Airport	14	0	5	19	14	18
FSM	Fort Smith Regional Airport	25	0	5	30	22	26

ID	Facility Name	Actual on Board as of 09/26/09				Total Controller Staffing Ranges	
		CPC	CPC-IT	Developmental	Total	Low	High
FTW	Fort Worth Meacham International Airport	11	2	3	16	11	13
FWA	Fort Wayne International Airport	21	2	2	25	17	21
FXE	Ft. Lauderdale Executive Airport	15	0	2	17	12	14
GCN	Grand Canyon National Park Airport	5	0	1	6	8	10
GEG	Spokane International Airport	24	1	6	31	22	26
GFK	Grand Forks International Airport	17	0	2	19	17	21
GGG	East Texas Regional Airport	15	1	2	18	14	18
GPT	Gulfport Biloxi International Airport	12	1	3	16	17	21
GRB	Austic Straubel International Airport	24	1	3	28	18	22
GRR	Gerald R. Ford International Airport	20	1	8	29	17	21
GSO	Piedmont Triad International Airport	29	1	8	38	24	30
GSP	Greenville-Spartanburg International Airport	15	2	6	23	16	20
GTF	Great Falls International Airport	10	0	9	19	14	17
HCF	Honolulu Control Facility CERAP	65	2	26	93	74	90
HEF	Manassas Regional / Harry P Davis Field Airport	13	0	1	14	10	12
HIO	Portland Hillsboro Airport	11	0	3	14	10	12
HLN	Helena Regional Airport	6	2	3	11	8	10
HOU	William P. Hobby Airport	20	2	1	23	16	20
HPN	Westchester Cnty Airport	13	1	4	18	14	17
HSV	Huntsville International - Carl T Jones Field Airport	16	1	1	18	16	20
HTS	Tri-State / Milton J Ferguson Field Airport	14	0	4	18	16	20
HUF	Terre Haute International-Hulman Field Airport	11	2	6	19	14	17
HWD	Hayward Executive Airport	8	1	3	12	8	10
I90	Houston TRACON	57	16	13	86	77	95
IAD	Washington Dulles International Airport	35	1	4	40	29	35
IAH	George Bush Intercontinental Airport / Houston Airport	39	4	5	48	34	42
ICT	Wichita Midcontinent Airport	31	1	10	42	29	35
ILG	New Castle County Airport	11	0	5	16	9	11
ILM	Wilmington International Airport	12	3	7	22	13	15
IND	Indianapolis International Airport	33	9	15	57	38	46
ISP	Long Island MacArthur Airport	14	2	1	17	13	15
ITO	Hilo International Airport	9	0	3	12	14	17
JAN	Jackson International Airport	13	1	3	17	15	19
JAX	Jacksonville International Airport	29	2	17	48	38	46
JFK	John F Kennedy International Airport	22	8	10	40	30	36
JNU	Juneau International Airport	9	0	1	10	8	10
K90	Cape TRACON	20	0	2	22	22	26

ID	Facility Name	Actual on Board as of 09/26/09 CPC	CPC-IT	Developmental	Total	Total Controller Staffing Ranges Low	High
L30	Las Vegas TRACON	28	12	11	51	44	54
LAF	Purdue University Airport	7	0	5	12	7	9
LAN	Capital City Airport	17	2	9	28	19	23
LAS	Mc Carran International Airport	32	2	14	48	32	40
LAX	Los Angeles International Airport	36	7	12	55	35	43
LBB	Lubbock International Airport	13	0	7	20	19	23
LCH	Lake Charles Regional Airport	8	2	7	17	14	17
LEX	Blue Grass Airport	17	0	8	25	18	22
LFT	Lafayette Regional Airport	13	1	9	23	16	20
LGA	LaGuardia Airport	22	6	7	35	28	34
LGB	Long Beach / Daugherty Field Airport	15	2	7	24	17	21
LIT	Adams Field Airport	26	1	8	35	25	31
LNK	Lincoln Municipal Airport	12	0	4	16	9	11
LOU	Bowman Field Airport	10	0	2	12	7	9
LVK	Livermore Municipal Airport	9	0	3	12	6	8
M03	Memphis TRACON	29	0	2	31	36	44
M98	Minneapolis TRACON	47	7	2	56	46	56
MAF	Midland International Airport	14	1	10	25	20	24
MBS	MBS International Airport	12	0	9	21	14	17
MCI	Kansas City International Airport	27	2	16	45	32	39
MCO	Orlando International Airport	31	1	2	34	22	26
MDT	Harrisburg International Airport	17	3	7	27	21	25
MDW	Chicago Midway Airport	25	0	7	32	21	25
MEM	Memphis International Airport	31	0	3	34	28	34
MFD	Mansfield Lahm Regional Airport	13	0	2	15	11	13
MGM	Montgomery Regional (Dannelly Field) Airport	17	0	4	21	14	18
MHT	Manchester Airport	11	1	1	13	10	12
MIA	Miami International Airport	55	11	32	98	75	91
MIC	Crystal Airport	14	0	3	17	7	9
MKC	Charles B Wheeler Downtown Airport	13	0	3	16	9	11
MKE	General Mitchell International Airport	35	3	19	57	40	48
MKG	Muskegon Cnty Airport	17	2	5	24	15	19
MLI	Quad City International Airport	12	0	6	18	14	17
MLU	Monroe Regional Airport	7	1	8	16	12	14
MMU	Morristown Municipal Airport	12	1	0	13	10	12
MOB	Mobile Regional Airport	21	3	2	26	21	25
MRI	Merrill Field Airport	12	0	2	14	10	12

ID	Facility Name	Actual on Board as of 09/26/09 CPC	CPC-IT	Developmental	Total	Total Controller Staffing Ranges Low	High
MRY	Monterey Peninsula Airport	7	0	2	9	6	8
MSN	Dane County Regional - Truax Field Airport	19	1	8	28	18	22
MSP	Minneapolis St. Paul Intl / Wold-Chamberlain Airport	38	3	0	41	30	36
MSY	Louis Armstrong New Orleans International Airport	29	0	12	41	26	32
MWH	Grant County International Airport	7	1	5	13	12	14
MYF	Montgomery Field Airport	9	1	3	13	11	13
MYR	Myrtle Beach International Airport	14	1	9	24	16	20
N90	New York TRACON	160	9	49	218	164	200
NCT	Northern Ca TRACON	128	6	57	191	136	166
NEW	Lakefront Airport	5	0	9	14	5	7
NMM	Meridian Nas / Mc Cain Field / Airport	9	0	5	14	13	15
OAK	Metropolitan Oakland International Airport	24	2	4	30	21	25
OGG	Kahului Airport	13	0	4	17	7	9
OKC	Will Rogers World Airport	29	2	8	39	30	36
OMA	Eppley Airfield Airport	12	1	4	17	10	12
ONT	Ontario International Airport	12	0	6	18	14	17
ORD	Chicago O'Hare International Airport	48	19	11	78	53	65
ORF	Norfolk International Airport	29	3	14	46	31	37
ORL	Executive Airport	13	1	1	15	8	10
P31	Pensacola TRACON	25	1	6	32	29	35
P50	Phoenix TRACON	42	12	8	62	50	62
P80	Portland TRACON	18	4	12	34	23	29
PAE	Snohomish County (Paine Field) Airport	10	0	4	14	8	10
PAO	Palo Alto Airport Of Santa Clara Co Airport	8	0	3	11	8	10
PBI	Palm Beach International Airport	27	2	12	41	33	41
PCT	Potomac TRACON	137	3	42	182	143	175
PDK	De Kalb Peachtree Airport	18	0	1	19	11	13
PDX	Portland International Airport	22	1	3	26	20	24
PHF	Newport News / Williamsburg International Airport	13	0	5	18	8	10
PHL	Philadelphia International Airport	66	8	25	99	72	88
PHX	Phoenix Sky Harbor International Airport	28	1	9	38	29	35
PIA	Greater Peoria Regional Airport	15	0	6	21	16	20
PIE	St. Petersburg-Clearwater International Airport	14	0	5	19	11	13
PIT	Pittsburgh International Airport	52	0	3	55	35	43
PNE	Northeast Philadelphia Airport	11	0	5	16	7	9
PNS	Pensacola Regional Airport	12	1	1	14	9	11
POC	Brackett Field Airport	10	1	3	14	8	10

ID	Facility Name	Actual on Board as of 09/26/09: CPC	CPC-IT	Developmental	Total	Total Controller Staffing Ranges: Low	High
POU	Dutchess County Airport	9	0	1	10	7	9
PRC	Ernest A Love Field Airport	12	0	6	18	13	15
PSC	Tri-Cities Airport	15	0	5	20	14	18
PSP	Palm Springs International Airport	12	1	0	13	9	11
PTK	Oakland County International Airport	12	0	10	22	11	13
PUB	Pueblo Memorial Airport	11	0	3	14	13	15
PVD	Theodore Francis Green State Airport	22	2	9	33	24	30
PWK	Palwaukee Municipal Airport	12	1	4	17	9	11
PWM	Portland International Jetport Airport	14	0	8	22	16	20
R90	Omaha TRACON	18	1	3	22	17	21
RDG	Reading Regional / Carl A Spaatz Field Airport	12	0	4	16	14	17
RDU	Raleigh Durham International Airport	31	4	16	51	35	43
RFD	Greater Rockford Airport	18	1	8	27	17	21
RHV	Reid Hillview Of Santa Clara County Airport	8	0	2	10	6	8
RIC	Richmond International Airport	14	0	6	20	12	14
RNO	Reno / Tahoe International Airport	9	4	10	23	20	24
ROA	Roanoke Regional / Woodrum Field Airport	15	0	12	27	19	23
ROC	Greater Rochester International Airport	24	0	4	28	20	24
ROW	Roswell Industrial Air Center Airport	10	0	5	15	13	15
RST	Rochester International Airport	12	1	3	16	13	15
RSW	Southwest Florida International Airport	21	1	9	31	23	28
RVS	Richard Lloyd Jones Jr Airport	15	0	3	18	13	15
S46	Seattle TRACON	31	5	23	59	38	46
S56	Salt Lake City TRACON	32	1	19	52	36	44
SAN	San Diego International-Lindbergh Field Airport	19	1	2	22	15	19
SAT	San Antonio International Airport	31	6	17	54	42	52
SAV	Savannah / Hilton Head International Airport	18	5	6	29	20	24
SBA	Santa Barbara Municipal Airport	17	0	14	31	22	26
SBN	South Bend Regional Airport	17	3	8	28	19	23
SCK	Stockton Metropolitan Airport	6	0	5	11	6	8
SCT	Southern California TRACON	170	30	56	256	182	222
SDF	Louisville International-Standiford Field Airport	33	2	10	45	34	42
SDL	Scottsdale Airport	12	1	3	16	10	12
SEA	Seattle Tacoma International Airport	23	2	7	32	21	25
SEE	Gillespie Field Airport	11	0	4	15	10	12
SFB	Orlando Sanford Airport	21	0	1	22	15	19
SFO	San Francisco International Airport	24	4	4	32	24	30

ID	Facility Name	Actual on Board as of 09/26/09 CPC	CPC-IT	Developmental	Total	Total Controller Staffing Ranges Low	High
SGF	Springfield Branson Regional Airport	29	0	7	36	22	26
SHV	Shreveport Regional Airport	14	0	11	25	18	22
SJC	Norman Y Mineta San Jose International Airport	17	2	0	19	11	13
SJU	Luis Munoz Marin International Airport	10	5	3	18	14	18
SLC	Salt Lake City International Airport	28	2	2	32	26	32
SMF	Sacramento International Airport	15	0	0	15	10	12
SMO	Santa Monica Municipal Airport	12	1	2	15	9	11
SNA	John Wayne Airport-Orange County Airport	19	4	6	29	19	23
SPI	Capital Airport	10	0	4	14	12	14
SRQ	Sarasota/Bradenton International Airport	14	0	2	16	9	11
STL	Lambert-St Louis International Airport	23	0	7	30	16	20
STP	St. Paul Downtown Holman Field Airport	14	0	2	16	8	10
STS	Sonoma County Airport	8	1	0	9	6	8
STT	Cyril E King Airport	9	0	0	9	8	10
SUS	Spirit Of St. Louis Airport	14	0	1	15	9	11
SUX	Sioux Gateway/Col Bud Day Field Airport	8	0	6	14	10	12
SYR	Syracuse Hancock International Airport	13	1	11	25	23	29
T52*	Griffiss Airpark Airport	9	0	0	9		
T75	St. Louis TRACON	47	0	3	50	26	32
TEB	Teterboro Airport	12	2	6	20	15	19
TLH	Tallahassee Regional Airport	17	0	11	28	16	20
TMB	Kendall-Tamiami Executive Airport	13	0	3	16	12	14
TOA	Zamperini Field Airport	10	0	3	13	8	10
TOL	Toledo Express Airport	21	1	4	26	18	22
TPA	Tampa International Airport	44	3	28	75	54	66
TRI	Tri-City Regional TN/VA Airport	14	0	6	20	14	18
TUL	Tulsa International Airport	24	2	8	34	25	31
TUS	Tucson International Airport	12	2	2	16	14	17
TVC	Cherry Capital Airport	9	1	1	11	7	9
TWF	Joslin Field/Magic Valley Regional Airport	5	0	4	9	7	9
TYS	McGhee Tyson Airport	19	4	9	32	22	26
U90	Tucson TRACON	14	4	10	28	19	23
VGT	North Las Vegas Airport	11	2	6	19	12	14
VNY	Van Nuys Airport	17	0	4	21	20	24
VRB	Vero Beach Municipal Airport	9	0	3	12	10	12
Y90	Yankee TRACON	22	0	8	30	19	23
YIP	Willow Run Airport	8	1	7	16	11	13
YNG	Youngstown-Warren Regional Airport	17	1	5	23	15	19

*Relocated to Syracuse 2/28/10

Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

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